

18 JAN 1990 ISSN--0566-2572

University News

MONDAY, DECEMBER 18, 1989

Rs. 2.50

Education, Polity and Economy



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UNIVERSITY NEWS

VOL. XXVII DECEMBER 18
No. 51 1989
Price Rs. 2.50

A Weekly Chronicle of Higher
Education published by the
Association of Indian Universities

IN THIS ISSUE

| | |
|--|----|
| Education, Polity and Economy | |
| Why and How of Eco-Restoration | 5 |
| Convocation | |
| Himachal Pradesh Krishi Vishvavidyalaya, Palampur | 13 |
| News from Universities | |
| Training for Administrative Personnel | 17 |
| Entrepreneurship Develop- ment Programme for Women | 18 |
| Refresher Course in Poli- tical Science | 18 |
| National Sanskrit Conven- tion 1989 | 19 |
| Agriculture | |
| Women in Agriculture | 20 |
| Phytopathological Society Meets at HAU | 20 |
| News from Abroad | |
| Reauthorization of Higher Education Act | 21 |
| Research in Progress | 22 |
| Theses of the Month | 24 |
| Classified Advertisements | 28 |

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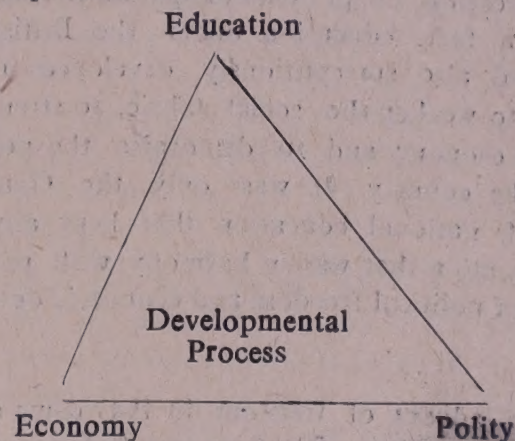
Education, Polity and Economy The Distorted Triangle

D.A. Ghanchi*

Philosophy

Education is a social activity, it being organised by society, for society, through society. Society has its past which has given it a certain heritage. Through the provision of specific education, society seeks to preserve and, if possible, to enrich that heritage and bequeath it to the posterity. While doing so, society, hopefully, keeps the future before it so that the posterity gets the legacy that is both manageable and meaningful. This entails a special responsibility on the architects of education in the present. They carry out this task by addressing the demands of polity and economy on education.

Education is, thus, conceived as a critical participant, of a triangular process which cumulatively leads to development, change and progress in society in a planned manner.



It is an interactive social reality that assumes myriad forms depending upon the interplay taking place among the three forces, and their relative dominance.

It is, therefore, imperative for planners and practitioners of education to take cognisance of this reality, and chalk out their strategies accordingly. No amount of mutual denigration or indulgence in an exercise of self-righteousness could be a substitute for a bold, objective and realistic appraisal of the triangular operation, and a consequent evolution of an appropriate response in the form of a workable educational system born out of a structured harmony among the three forces. Such harmony can emerge and endure only if these three forces operate within the bounds of the rules of the game evolved consensually and observed conscientiously by them.

The Indian Scene

Ancient Indian education developed by way of an answer to the then societal needs laid down by the scriptures in the form of the four-fold goals of Dharma, Artha, Kama and Moksha. The polity, whether in the form of a Gram Sabha or a Kingdom, supported education materially and morally as a part of its social and religious duty, and at the same time refrained from interfering with it for any ulterior motives. The self-reliant rural economy retained its normal vigour through the

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manpower appropriately trained by the contemporary education system. Thus, the trio worked harmoniously to their as well as to society's advantage.

The Sultans and the Mughal emperors built up the education system by keeping the ancient Indian model intact. In fact, they adopted it even for the theological education for the Muslims. The polity and economy during their rule interacted with education for mutual reinforcement.

It was during the British rule that the triangular coherence was made to fall apart with a deliberate design. The British polity initially allowed chaos to ruin both education and economy of the country. Thereafter they made economy an apparatus of colonial exploitation, and education a tool to proselytise. Then from 1858 ensued a phase of non-commitment, euphemistically so called, as it was a virtual abdication of political obligation towards the subjects. In fact, education under the British was cleverly, and also surreptitiously, developed into an instrument to weaken the social fabric, to strengthen the colonial economy and to demoralise the political ethos of the country. It was only the Gandhian initiative of national education that kept alive the spirit of education that was in harmony with national aspirations of political freedom and economic development.

With the advent of freedom in 1947 came a sea-change in the situation. The founding fathers of the Nation devised a Constitution that sought to restore the fractured harmony between education, polity and economy to its original health. They designed a federal framework for the country's polity reiterating thereby qualities of mutuality, cooperation, tolerance and consensus in running the macro and micro systems of national life—political, economic, educational, social and cultural.

Ideals in Action

The country has been on the march since it achieved independence. In the realms of the three constituents of the triangle of social development, there have been remarkable achievements as well as shortfalls. To list a few of the significant ones, we should keep the following in view.

(a) Indian Polity

(1) The political system has struck firm roots as a democratic, socialistic, secular republic with the

written Constitution having provided for checks and balances between the legislature, the executive and the judiciary.

(2) The people have had considerable political education through participation in elections to various bodies ranging from the village Panchayat to Parliament. They have been politicised by intense political activity organised by political parties of all hues and colour. They have shown remarkable political resilience election after election, thereby giving stability and strength to the democratic polity.

(3) Indian politics has, in course of years, fallen prey to malignancies like corruption, self-aggrandisement, nepotism, communalism, casteism, regionalism, personality cult, sycophancy, violence, indiscipline, and even anti-national tendencies.

(4) Of late, the Indian polity has been subjected to tremendous pulls. The state apparatus is often being incapacitated to carry out its functions even of maintaining law and order let alone its developmental agenda. Naturally, the first unfortunate victims of political malfunctioning are economy and education.

(b) Indian Economy

(1) Since Independence India has witnessed a huge explosion in its population. In economic terms, population is a critical resource in the process of development as it provides manpower as well as market. This, however, is conditioned by the quality of population which leaves much to be desired in India.

(2) There has been a tremendous all-round improvement in the process of economic development, thanks to the planned economy, the most significant achievement being self-sufficiency in foodgrains through the green revolution and rapid industrialization through the use of state-of-the-art technology and scientific manpower.

(3) The strange phenomenon of the economic scene, however, is the concurrent growth of the parallel economy, a life style of conspicuous consumerism, unplanned urban growth accompanied by pollution, slum proliferation and criminalised group dynamics, growing unemployment among the youth, and a large section of population living below the poverty line.

(4) The economic content of political freedom

Promised by the Constitution of the country in the form of development with distributive justice continues to elude the reach of the common man, the Daridra Narayan. This builds up tensions in the body politic of the country which frequently manifest in the form of violence, mafia and terrorism.

(c) Indian Education

(1) In terms of quantity, education has registered a phenomenal growth. As it is today, around 120 million students are being provided formal education in schools, colleges and universities. However, even in terms of quantity the dream of universal primary education has remained unfulfilled. Besides quantity has not been matched by commensurate quality at any stage of Indian education.

(2) A uniform pattern of education in the form of the 10+2+3 structure has progressively evolved all over the country. And as a corollary thereto, endeavours are on to develop largely common curricula, instructional programmes, evaluation system and even management, particularly with the implementation of the New Education Policy (1986).

(3) Education, as a concept, a process, a system and a profession has been modernised over the years. As a consequence thereof, science and technology have come to influence education in a big way. Innovations, structural, methodological, technical and managerial, have been accepted and given a fair trial. R & D and even utopias have also entered the horizon.

(4) However, competitive politics and the economy of poverty have taken a heavy toll of the *elan vital* of education. Both have conspired, as it seems, to infect the vital parts of education as to make it almost ineffective in its role as an instrument of national development.

The Distorted Triangle

The process of development in the country is determined by a harmonious functioning of the triangle of polity, economy and education. It means that :

(a) each of the three sides of the triangle should, by themselves, to use the geometrical terminology, be genuine straight lines, i.e. they should be what they are supposed to be, and

(b) each of the three sides should relate itself positively with the other two to form a triangle of appropriate area. The history of the evolution of the systems of polity, economy and education in India, since independence in particular, abounds with patent distortions in each of them *per se* and in their mutual relationship *inter se*. For example :

(i) The Indian polity, though based on the principles of democracy, has frequently compromised on this score for expediency, and temporary gain to a party or a group or even an individual ! Moreover, it has not exercised its political will many a time to give a desired direction to the process of development in economy as well as education. It is precisely this weakness that has encouraged the parallel economy. It is this ambivalence that has almost sabotaged the three-language formula in the nation's educational agenda.

(ii) The Indian economy, likewise, despite the approach of planning, has had a skewed growth, making the rich richer and the poor poorer. It has distorted the political apparatus also by bending it to suit its motives, and has cared very little for education in terms of interaction.

(iii) The Indian education, instead of responding to the modern age of science, technology and social change, has preferred to remain, by and large, reactive, static and formal. No wonder, it has to be at the receiving end politically by being non-volitionally politicised in the negative sense. And, as far as the economy is concerned, it has not made itself indispensable for development by providing leadership in curriculum, research, innovations, consultancy, etc.

Consequently, a reality has evolved wherein we find that, despite considerable inherent potential of our polity, economy and education to contribute to their common goal of national development, distortions have crept into the interactive system leading to individual and collective wastage. This is a deplorable situation much to the grief of millions of the masses, who, through the Constitution of the country, were promised a life of self-esteem (by way of the democratic set-up), of freedom from want (by way of economic development with social justice) and of enlightenment (by way of an effective education system), but, who now feel let down by all the three !

The country in the peculiar context, national and global, at the close of the twentieth century, cannot afford to remain stayput in this situation as it has already, through its National Policy on Education (1986) and the related Programme of Action (1986), declared its intention to have a tryst with the 21st century. We need to set right the distorted triangle of polity, economy and education through an appropriate corrective therapy.

Corrective Therapy

The Indian troika of polity, economy, and educa-

tion is a huge complex, which has got built up, year after year, into an intricate multi-level web. It permits of no quick, simple solution to any problem, the anatomy being so intertwined. Hence the need to adopt a continual therapeutic treatment on an on-going basis, encompassing all the three components of the development triangle.

The corrective therapy envisages a three-pronged attack, namely,

- (a) setting the house in order,
- (b) shedding the exclusivity syndrome, and
- (c) establishing and operating an interactive network.

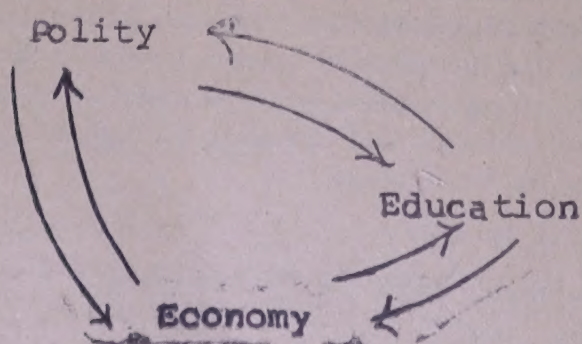
Let's examine what each dimension of the attack expects us to do.

(a) All the three, i.e., the Indian polity, economy and education, need to set their house in order in the context of the Constitution of the country, their legal and moral obligations to the Indian nation and their role *per se* as agents of national development. They must rid themselves of the distortions that they have themselves allowed to develop or have connived at their creeping into their systems. This may necessitate a powerful shake-up or a thorough overhaul or even an outright surgical operation depending upon the gravity of the malignancy involved. Let each one do an honest self-searching, which, of course, is an agonising exercise, and strive to restore its original health and vitality.

(b) The three components, have more often than not, displayed an attitude of exclusiveness and tried either to wilfully ignore the other two or to arrogantly look down upon them. Political bossism, economic hegemony and self-assumed supremacy of the ivory tower of education are all too familiar manifestations of the culture of exclusivity.

However, the age of science, technology and social change demand a multi-lateral, inter-dependent and cross-fertilising organic relationship among various participants in a developmental process. Let each one ingrain an attitude of inclusiveness towards the other as an essential trait of relationship.

(c) Once an appropriate perspective is developed of the self and of the other, a stage is set for action. Here the three components must operate in a mutually supplementing and reinforcing network as indicated in the diagram.



It's supposed to be an interactive partnership to realise a common goal, that of national development. Therefore, every partner shares as well as contributes in terms of resources, expertise, investment and involvement, and thereby everyone of them gets strengthened and enriched in the process. It, ultimately, develops into a self-propelling, self-sustaining and on-going process.

The Strategy

To carry out the corrective therapy we need to adopt a strategy that should motivate each one to put forth the best that is inherent in its potential. This should be pooled together and channelised into desired direction of change and development.

It is suggested that a three-tier network of agencies be set up for this task. It is like the following :

- (1) National Agency for Interactive Development
- (2) State Agency for Interactive Development
- (3) District Agency for Interactive Development

Each agency should consist of representatives from the polity, economy and education with proven vision, ability and commitment for national development through interactive relationship between the said areas.

These agencies will operate as think tanks for national development as a function of interaction among polity, economy and education. They will do things like the following :

(i) To study the state of the polity, economy and education and identify tendencies likely to militate against interaction among them and jeopardise national development thereby.

(ii) To suggest steps and measures, both for policy and for action, to remedy inadequacies, if any, in each of the three forces, and to strengthen positive points in them with a view to encouraging greater interaction among them and thereby helping the goal of national development.

(iii) To monitor the interactive process of the polity, economy and education on an on-going basis, and offer feed-back to them in order to make the process maximally productive and fruitful.

Conclusion

The polity, economy and education of a country in the modern world are on one hand, powerful instruments of power, with tremendous potential, both positive and negative. On the other, they are extremely potent tools for the development of people provided they are utilised to the maximum by being made to interact with one another in harmony in the context of clearly articulated goals. The need of the hour for India is to do the latter, for culturally and politically India is wedded to the path of national development through harmony.

Why and How of Eco-Restoration

Role of Intellectuals

J.C. Pant*

Ecology can be described as the study of relationships between living organisms and their environment. In other words, in the human sense it is the science of interrelationship between society and nature which constitutes our environment. Our eco-system has come to its present depleted condition primarily because human society which is constantly interacting with it has brought it about by dint of its own internal contradictions. Any effort to restore the eco-system would, therefore, not bear fruit unless the internal contradictions of present day human society are also resolved simultaneously.

Men and women constitute human society which has classes and castes, low and high, weak and powerful. The powerful and strong elements in society have usually tended to exploit the weaker sections and have been known to take advantage of the weakness of the weak. That all humans are entitled to equal treatment has been one of the important tenets of civilized human societies and the Indian Constitution has given great prominence to social justice and dignity of the individual in the scheme of things and in its directive principles.

In world affairs powerful nations have always been on the look out to exploit the natural resources of our planet for their advantage. Power blocks were once formed in order to monopolise the use of precious resources at the cost of the less developed nations. So long as nature was regarded as inexhaustible such a rivalry amongst nations did not seem to disturb the ecological balance of our planet materially, but not so now. At last, even the powerfully nations have begun to get concerned about the depletion of the life-support systems in our environment. Ecologically the world is getting to be recognised as one and international tensions are getting eased. Cooperation amongst nations for the purpose of safeguarding earth's environment as well as for organising ecological restoration is gradually taking shape. The strong are now prepared to concede the right of the weak to co-exist, for in that lies the salvation of all.

What applies to the comity of nations applies equally well to the strong and the weak elements in our own society. It is now no longer possible that the natural resources of the country should be harnessed for the benefit of a few privileged groups at the cost of the under-privileged masses. Gandhiji put it very aptly when he said that "we have enough for every one's needs but not enough for every one's greed." It is no longer possible to put off meeting the needs of all and our systems have to be geared in such a way that this should begin to happen. In other words, the weaker elements in our society should be encouraged to become self-reliant and that is possible only if the stronger elements learn to exercise self-restraint in the matter of consumption of resources. If the stronger elements do not bring about the desired change in their pattern of consumption the danger of the entire fabric of social structure coming down cannot now be ruled out. It must also be realised that with progressive depletion of the eco-system, clean air, clean drinking water and clean food is going to be scarce for all. In their own as well as in the common interest, the stronger elements should extend a helping hand as a gesture of goodwill also to the weaker elements and jointly work for the restoration of the eco-system which will provide sustenance to all.

This is where the role of the professional intellectuals, the flower of our social system, comes in. Can they harness their talent and energies for the benefit of the common good? Can they, by organising "Eco-Restoration-Nirman Clubs" (see Annexure) in professional institutions adopt a five-point programme to bring about the desired social transformation suggested here? The five point programme is (i) Women's awakening, (ii) Men's emancipation, (iii) Population control, (iv) Restoration of the eco-system, and (v) Employment generation—which are being elaborated here. It is an integrated programme of action calculated to resolve the internal contradictions of present day human societies leading to a harmonious relationship with nature and the environment, and working steadily to restore the eco-system and the life-support mechanisms of nature, making full use of modern science and technology (S & T).

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1. Women's Awakening

Women constitute nearly fifty per cent of our population and due to various historical and social reasons they have not been able to contribute to the country's overall social and economic progress to the extent they could have done. Unless the status of women in our society is restored as equals to men, their contribution to progress is going to remain half-hearted and marginal. Relieving the drudgery of household chores, sharing the responsibility of bringing up the family, having respect for the women folk, taking up programmes which will enable more and more women to become educated and self-reliant are some of the directions in which work has to be started in right earnest. It is women in the hills and our rural areas who are deeply affected when the eco-system is unable to provide clean drinking water, fodder for the cattle and fuel for the family cooking. These have always been available to the mass of our people through the bountiful nature at their doorsteps and with the depletion of the environment women have now to trudge miles after miles to feed their cattle, to keep the kitchen fires going and to quench the family thirst.

2. Men's Emancipation

Rampant consumerism seems to have gripped the thought processes of our social elite and seems to have generated an inexhaustible greed in them. Conspicuous consumption is fast acquiring social status due to which there is an unseemly competition to acquire wealth in the shortest possible time. The existence of a parallel black money economy is further fueling conspicuous consumption. It is this black money which is financing the dowry system and fanning social inequalities and corrupting the youth of our country. There is urgent need to break this vicious hold of black money over our social system. With a Constitution which emphasises social justice and the dignity of the individual we must sit up and take note of the steep decline that our social values have taken. We must now begin to practice restraint in public display of wealth and try to promote a climate of saving. Social and individual savings and the energy generated by abstention from conspicuous consumption could be profitably ploughed back into schemes for the benefit of those who save. We must now reassert the glory of simplicity and the common touch. To consume what is not within easy reach of the poorest in the land should begin to stir our conscience. Emancipating the minds of

men from the scourge of consumerism must become our foremost concern in the next decade. Value orientation to this effect would have to be organised in each of our professional institutions on a sustained basis both for the students and also for the professional intellectuals who may be invited there for short one-week orientation courses. Structuring these orientation programmes ought to be taken in hand at the earliest. Apart from value orientation these courses ought to put across the entire concept of eco-restoration as a total world view encompassing the proposed five-point programme also.

Consumption of narcotics on the campuses of professional institutions needs to be eliminated, not only because they are habit-forming and health hazards but also because their supply systems nurture and sustain vast national and international empires of crime and terrorism. Cigarette smoking is not only a health hazard to the smoker but also to the innocent passer-by who must inhale polluted air because the smoker is unable to resist his craving for nicotine. In USA, the government has come down heavily on smoking and their example needs to be followed here also.

Another favourite pastime of men has been fighting wars to prove their bravado. While at the international level fear of nuclear holocaust has helped in creating a situation where world wars may not take place, the occurrence of small-scale local wars is an entirely different matter. It is well known that wars are made in the minds of men and it is in the minds of men that wars will have to be eliminated. But how do we eliminate wars when the merchants of death and the arms manufacturers of the world are busy promoting small local wars in the minds of men. Fortunately, wars have seldom been made in the minds of women. Therefore, women marching in the vanguard of future social transformation is the surest guarantee for a world without wars and a world safe for democracy. In order to bring about change around us we will have to start by making a change within ourselves. This struggle to make a better new world and a world safe for democracy therefore, must begin in the minds of men. Psychologists are of the view that in peace time rescue operations call for the same kind of bravado and heroism that arise in situations of war. Our youth activities such as boy scouts and girl guides, NCC and NSS should, therefore, concentrate on training our youth in organising relief and rescue operations and in adventure and sports activities as well.

3. Population Control

While women's awakening and men's emancipation would go a long way in creating a favourable climate for population control, much more needs to be done in this respect. Population explosion is everyone's baby but does not appear to be everyone's perception. Enough of mass education regarding the perils of population has taken place. Now is the time to act. A law regarding population control needs to be enacted and public opinion in favour of such a legislation must be built up. Social benefits should henceforth be available on family basis assuming them to have two children. A family having a third child should be compelled to contribute one hour free labour per day or 365 hours per year for planting trees in the nearest woodlot. Childless couples should be encouraged to adopt orphans and single child families should be honoured. Only one child per family should be offered employment in public services. Minimum age for marriage needs to be revised upwards and bachelorhood needs to be given respectability. This greatest of man-made calamity needs to be recognised in common perception and corrective social, political and administrative measures have to be planned and implemented. A one-child family norm should now be firmly established in our society and should be given the widest possible currency. For this, low cost reliable mother and child health care facilities would have to be developed so that the rate of infant mortality could be brought down considerably over a period of time. Here again the role of awakened women is going to be crucial.

4. Restoration of the Eco-System

Amelioration of mass poverty is one of the important responsibilities of a welfare state like India. Development programmes have of necessity to be launched from time to time to meet the rising new demands of the people. Development basically denotes a social system moving towards a more desirable and more mature state. Society requires a variety of natural and environmental resources for subsistence as well as for a good life and in this process many undesirable waste products of human activity are dumped into our eco-system. Thus all development programmes cause a disturbance in the eco-system. Individual humans as well as human societies are today striving to increase the level of resources consumed by them as a hallmark of progress and are imposing increasing demands on the

waste absorbing capacity of the environment. The so called developed countries consume vastly greater quantities of resources and generate much greater volume of waste products, which they are ever on the look out to dump into the seas neighbouring third world countries.

Strategy for Balanced Development

Should our development strategy, therefore, lie in competing with the developed countries in the matter of resources consumed and waste generated, particularly so in view of the fact, that in the world forums India has always opposed the developed countries for their attitude towards the third world countries in this respect? Our own strategy of balanced development in the country ought to ensure a careful rationing of our natural resources to bring about benefits to the largest number of people in a manner which will generate the least amount of waste products and also serve the core industries in the best possible way. Whatever disturbance that is going to be caused by such essential development programmes should be apprehended well in time so that the remedial measures are a part of the same development process. Our planning process needs to exercise vigilance in this respect so that such unavoidable damages to the eco-system are more than made up by simultaneous strategies of ecological regeneration. In other words, a concept of sustainable growth has to be evolved. We must realise that protecting and restoring the eco-system involves planning for the long run. Unfortunately, our concern for short run successes leads us to ignore the eco-system in the planning process.

Sustainable Growth

It has been well said that growth for the sake of growth is the philosophy of a cancer cell. Growth in order to be sustainable ought to be equitable, low cost, economically more efficient, more productive and stable. It should always keep ecological and cultural considerations in full view so that the consequential development benefits reach the largest number of people with a minimum damage to the eco-system.

Energy

Apart from consumption of resources as an index of economic development there is yet another indicator highlighting the so called good life. The levels of consumption of energy are now being

quoted as an indicator of the standard of living of a people. Unfortunately, just as industrial development has become synonymous with development itself, similarly energy has become synonymous with electricity. We all know that installing electric power stations is one of the most capital intensive form of development activity which is known to weigh most heavily on our eco-system. The dilemma is that electric power has been identified as one of the most important gifts of science and technology to modern civilisation. What, then is the answer to the burgeoning demand for more and more electrical power and energy? How can the process of growth be made less energy intensive?

Conservation of Energy

An answer in tune with our technological times to this dilemma lies in gearing our intellectual talent to organising conservation of energy in the entire spectrum of domestic, social, commercial, agricultural and industrial arenas. Research and development activities at all levels ought to be geared to this end so that over a period of time the process of economic development gradually becomes less energy intensive and therefore, less disturbing to the eco-system.

Research and Development (R & D)

Here are some prominent and immediate R & D issues in selected areas of science and technology (S & T):

A. Conservation of Energy

(a) Reduce the number of conversions from one form of energy to another form, because each conversion entails heavy energy loss. Identifying areas of S & T where this has to be undertaken in a phased manner.

(b) Identifying areas of economic activity and domestic needs where energy other than electric power could be used profitably.

(c) Improve efficiency of machines where electric power must be used and rectification of technology where energy consumption is inefficient.

(d) Improvement in motor engine designs to bring about economy in fuel in the shape of petrol and diesel.

B. Creation of New Sources of Energy

(a) Identifying renewable sources of energy.

(b) Practical application of non-conventional sources of energy.

(c) Locating new sources of energy.

C. Energy Budgeting and Planning

Energy budgeting and planning should be undertaken as an essential periodic technological exercise by a multi-disciplinary team of scientists and technologists at different levels.

D. Recycling Waste

(a) Effluent treatment and using effluents as raw material for other useful industrial purposes.

(b) Treatment of exhaust fumes and flue gases.

(c) Analysing all waste matters in daily existence and promoting recycling in the cottage industry sector.

(d) Disposal of industrial and domestic waste which is not biodegradable.

E. Micro-Hydel Technology

Micro-hydel technology to be perfected to replace gigantic hydro-electric projects in order to avoid submergence of large tracts of lush green forests whenever they still exist.

F. Agriculture

Advances in agriculture have tended to pass on its value additions to the industries sector due to which improved agriculture is progressively yielding diminishing returns giving rise to farmer unrest. Research in agriculture needs to reverse this trend for sustainable foodgrain production to ensure continued self-sufficiency in foodgrains. It should be taken note of that India is the world's biggest user of pesticides which are causing widespread pollution and poisoning.

G. Water Management Techniques

Perfecting water management techniques in

(a) Irrigation.

(b) Drinking water and other water supply systems.

(c) Industrial use.

(d) Domestic use.

H. Perfecting Land Reclamation Techniques

This will be a major employment generation area in view of large tracts of wastelands obtaining in the

country. This would include greening of common lands.

I. Perfecting Building Technology

To enable use of cheap local building material.

J. Ecological Degradation

Establishing procedures to take stock of ecological degradation in a given area and working out methods and procedures of eco-restoration.

K. Healthcare and Medicare

Evolving a low-cost decentralised system to make available such facilities as widely dispersed as possible and also linked with specialised hospital centres for treatment of chronic ailments.

L. Changing Syllabi in Technological, Medical and Management Institutes

(a) To instil social concern and ecological awareness in fresh technical and medical manpower.

(b) To carry out orientation programmes for the benefit of all existing technical and medical manpower in the country within a given time-frame.

Management of Land and Water

Clean air, clean drinking water and clean nourishing food are the three prerequisites of a decent existence. These require conservation of soil and water and sufficiently extensive vegetative cover. Management of our land and water resources must now receive our highest attention. Greening our common lands should be a major employment generating programme. Reducing costs in agriculture must be attended to by resorting to organic measures of pest control and providing soil nutrients to the soil. Poor returns in agriculture with increasing costs is giving rise to farmer unrest in areas which once led in the green revolution. Stall-feeding of cattle to conserve biomass and to prevent overgrazing of common lands must be promoted. Can separate management of common lands be considered to prevent their diversion for purposes other than genuine public interests? Every habitation in the country should have its own woodlot to meet the fodder, fruit, fuel and biomass needs of that habitation. Every road should be lined with trees to counter the pollution caused by the exhaust of motor vehicles.

Hill Areas

In the hill regions tourism based on trekking needs to be encouraged. Instead of allowing huge multistorey five-star hotels to come up in future it would be advisable to promote small tourist lodges as extension of existing houses of the local residents. The literature which is prepared for the guidance of tourists needs to emphasise the importance of keeping the Himalayas clean and to ensure this the tourists may be advised to carry back with them their garbage instead of littering the hill stations. Similarly, the special traffic problems posed by hill driving ought to be highlighted to prevent road accidents which are painfully on the increase. Hill areas where further road construction is not an economic necessity should not be subjected to dynamite blasting which does irreparable damage to the local flora and fauna. Gentler methods of landscape development need to be resorted to in the Himalayan regions lest our sentinel, the Himalaya is washed down the rivers into the Bay of Bengal. Cultivable lands in areas higher than 4000 ft. above sea level should be used primarily for fodder cultivation to stall-feed all the cattle there. Growing of vegetables and herbs may also be encouraged as cash crops at high altitudes. Subsidized foodgrains should be made available at fair price shops at these altitudes. Employment generation in the hills should come out primarily from government sponsored tree-plantation programmes to cover bare hills. The prominent hill stations should all develop satellite hill stations to prevent over-crowding and insanitary conditions during peak tourist seasons.

Urban Areas

The migration to towns from the villages is creating alarming problems in the urban areas. There is urgent need to devise policies to reverse this flow of population. Immediate launching of employment generation programmes in the rural areas may halt this flow of people into towns. The Jawahar Rozgar Yojna has arrived on the scene none too soon and its proper implementation ought to be ensured to obtain the desired results. The small and medium size towns should be encouraged to absorb excess population instead of the big towns trying to become bigger still. New growth centres need to be identified where agro-industrial and marketing infrastructure may be planned right from now. The new agro-industrial towns should not segregate milch cattle from human habitations to make possible the

use of bio-gas for cooking and lighting purposes. This will tend to make the new towns self-sufficient in the matter of domestic energy consumption. Congested roads may be converted into roads for motorized traffic only and investment in public transport ought to be stepped up. Roads of lesser specifications may be built parallel to the existing congested national and state highways only for non-motorised traffic in a phased manner. Congested areas of existing towns should progressively prohibit entry of motorised transport to counter the health and traffic hazard posed by two wheelers, three wheelers and four wheelers. This will make for road-safety as well as for fuel efficiency and would, in the long run be an energy conservation measure.

Water Scarcity

In areas of water scarcity can rainfall on roofs be conserved for use as drinking water? This is important considering that of all water available on this planet only 0.5% is potable and rain water happens to fall in that category. Every village and town should be geared to store rain water for irrigation and for water supply systems. The village pond filled with water is the best guarantee for village wells to keep supplying clean drinking water and to prevent the water table in the area from falling. Our towns are all using potable water for flushing their lavatories and irrigating their parks and lawns while large areas of our country are short of drinking water. Engineers and technical personnel need to be oriented in restoration of the eco-system. Administrators and managers need to be made aware of this change in the strategy of generating employment so that future capital investment projects are also strictly scrutinized to assess their capacity to restore the already depleted eco-system rather than merely preventing further ecological damage, before it is too late.

5. Employment Generation

Existence of waste of all kinds is a prominent feature of our landscape. If we want to make our environment livable, proper management of waste seems to be inescapable. Can we not generate employment in the cottage industry sector by using the locally available waste as raw material? Thus, restoration of the eco-system and management and recycling of waste should be the two prominent areas to generate employment in future. Research and development would have to be undertaken in order to analyse all waste matters in daily existence and to

recycle the same in the cottage and small industry sectors. Similarly, disposal of industrial and domestic waste which is not bio-degradable would also have to be organised.

Preventing Brain-Drain

There are many other advantages to be drawn from the massive R & D effort in these directions. As an important fallout, the brain drain to the western countries and to U.S. in particular could be checked by stepping up R & D activities. While visits abroad for study could be encouraged, the students should be asked to identify an area of research when they finish studies abroad. Many of our bright students who go abroad, stay on there because they have nowhere to get back. U.S. is today attracting our best brains and when they stay on there, they willy nilly become directly or indirectly a part of their military industrial complex which appears to be indirectly fomenting wars in the third world countries to find new markets for their own arms manufacturers. Late President Eisenhower, who had witnessed the horrors of the second world war had cautioned his countrymen against such a military industrial complex, but apparently events have overtaken the liberal forces in U.S. By our own massive R & D efforts we could prevent our boys and girls from falling prey to the American way of life, the most powerful and seductive proponent of consumerism. This would be a major reform in our higher education sector.

Implementation

These are issues which are easier stated than carried forward. They would need to be discussed by our thinkers and men and women of action. Our men and women of letters will have to leave their ivory towers to mingle with our men and women of action. Converting thought into action is one of the rarest of phenomena which we will have to multiply on a large scale. Our men and women of action are ever keen to explore and experiment but they need encouragement and support. Our best ideas and latest techniques need to be tested in the light of the experience of our men and women of action. Mao's dictum to go to the people to test your ideas is a piece of practical advice. This may be adopted by government departments, public sector undertakings and organised industry as a method of correcting the distortions that have crept in their working over the years as a result of their growing distance from reality. Science and technology have united the

whole world so effectively that we will all now either swim or sink together. No one segment of our population can now hope to survive in isolation. So the only alternative is that all should cooperate to survive. The physical and intellectual resources of all the peoples of the world now need to be pooled to build a better new world.

It is now common knowledge that historically economists have been paying more attention to consuming resources and less to raising them. Our focus on money incomes and hence on commodities that enter market transactions has led to a total neglect of non-market resources of great significance to the rural population. The days when nature was considered inexhaustible are over. There is thus, a need to evolve economic instruments to conserve the natural resources and the eco-system. Methods of pricing exhaustible natural resources need to be evolved. Merely externalising the cost of degeneration of the eco-system cannot be sound economics in the long run. We ought to be maximizing our country's Gross Natural Product in place of the conventional economists' Gross National Product. The existing Mind-Set which is tuned to a paradigm of growth dedicated to consuming resources as an indicator of progress has to be replaced by a Mind-Set tuned to a paradigm of harmonious growth dedicated to least cost planning and conservation of the eco-system. Merely developing a number of islands of prosperity sporadically in a sea of poverty must not be the end result of our planning process.

Conclusion

What then, is the way out? Do our professional intellectuals such as scientists, doctors, engineers, judges, lawyers, journalists, teachers, administrators, managers, social workers, writers and others have a role to play in initiating a social action movement to safeguard our environment which sustains the life-support system of all living beings?

In this hour of reckoning our professional intellectuals have to jerk themselves out of their smug complacency and rise to take part in the most unique social revolution in human history which will change the minds of men of this generation as well as of the future generations. Growth in order to be stable must be sustainable. No development can be sustainable until it is just, equitable, low cost and economically more efficient and in tune with the eco-system.

This will call for a change in the strategy of growth to ensure balanced development. This will require restructuring our educational system so that the new strategy for balanced development gets adequate motive power in a sustained manner. This will in fact, call for a change in the very process of planning. The best minds in the country should be able to contribute to the planning process in order to give to our country the best sustainable plan it can afford at a given time. Even USSR which is regarded as paragon of socialist planning has been working hard at Glasnost and Perestroika. Decentralized systems of management enabling community control over our natural resources is, perhaps, a pressing need of the hour. Men and women whose minds are bulging with ideas must mingle with the masses to learn about their pressing problems and devise solutions in tune with their social, economic and cultural needs in consultation with them. Sublime thought and pure action must now be made to merge. Each one of us has to ask oneself, "What is going to be my plan of action in the face of this challenge?" The proposed new legislation on Panchayati Raj can be an opportunity to be fully made use of and developed. A social action movement enabling individuals, social groups and governments to cooperate and act in a concerned manner in different spheres of our national life must get initiated for the common cause of building a new social order which will ensure social justice and dignity of the individual. Will the professional intellectuals of our times rise to the occasion? An affirmative answer to this question alone is going to determine the future of our planet, space-station EARTH. □

ANNEXURE

Eco-Restoration—Nirman Club

A charter for intellectuals of professional institutions.

Whereas our environment is progressively getting so polluted that clean air, clean water and clean food are becoming scarce ;

Whereas indiscriminate destruction of natural resources prompted by greed of a few is upsetting the Life Support System of all living beings ;

Whereas ignorance, indifference and scarcity of low cost reliable child health care facilities are causing a Population Explosion threatening the well being of all;

We Resolve to devote our energies and intellect for the furtherance of :

1. **Women's Awakening** to restore the status of women in our society.

2. **Men's Emancipation** from a craze to make money anyhow within the shortest possible time.

3. **Population Control** to establish a one child family norm.

4. **Restoration of the Eco-System** by expanding tree and vegetative cover over our planet to maximise photo-syntheses i.e. maximise absorption of carbon-dioxide and production of life-giving oxygen in earth's atmosphere.

5. **Employment Generation** by recycling waste of all kinds in the cottage industry sector as well as the small scale sector in order to keep our surroundings clean also.

We Resolve to participate wholeheartedly in our personal capacity, professional capacity as well as our social capacity in the propagation of the five point programme through **Social Action Movement for Education and Eco-Restoration** involving individuals, social groups and governments, **SAMEER** for short which means clean cool breeze.

We Resolve to convert our theoretical solutions into practical programmes through research, experiments, modification of syllabi, pilot projects and their extension to be undertaken by us throughout our working lives in order to create a social order infused with Social Justice and Dignity of the Individual.

The **Eco-Restoration—Nirman Club** shall as far as possible meet once every week, preferably on a Saturday to discuss and deliberate on matters connected with the five-point programme and to set out feasible goals for each member according to their inclination.

The **Eco-Restoration—Nirman Club** shall occasionally invite and honour eminent persons who have contributed to Eco-Restoration and Value-Oriented Education and have led a clean professional life and have been known for upholding high standards of professional conduct, and encourage members to follow their example.

The **Eco-Restoration—Nirman Club** get-togethers shall be usually presided over by the oldest member present and the record of proceedings shall be made by the youngest member present unless otherwise directed by the oldest member present. □

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Dr. A.K. Sharma, M.Sc., M.L.S., Ph D.
MANAGING EDITOR (Hon.)

APPLE STATE OF INDIA

"Himachal Pradesh, which is popularly known as the 'Apple State of India', is on the threshold of becoming the 'Fruit Bowl of the Country'. The Lahaul valley has attained the world record for highest per hectare production of seed potato. The State is also a pioneer in the production of off-season vegetables, vegetable seeds, mushrooms and cash crops like ginger, saffron and kala zira. Another promising crop is soyabean, whose full potential is a mixed crop with maize or as sole crop for seed and oil is yet to be exploited. Apart from being nature's paradise, the State has given new concepts and models for the development of hill economies in the country," observed Shri Virbhadra Singh, Chief Minister, Himachal Pradesh. Shri Singh was delivering the Convocation Address at the sixth Convocation of the Himachal Pradesh Krishi Vishvavidyalaya, Palampur. Excerpts

As I look back at the agricultural scenario at the dawn of independence, I feel a great sense of pride and satisfaction over the achievements of the last four decades. In the early fifties, it seemed as if the country would be continually dependent on foreign supplies for its food requirements. However, during the sixties, agricultural universities came into being, and the concerted efforts made by the scientists and the farmers laid the foundation of a

agricultural scientists and above all the hard-working farmers. During the last three decades India has witnessed a three-fold increase in the production of foodgrains, which has now reached the all-time high of 175 million tonnes. However, this is no cause for complacency. By the turn of the century, India would need 250 million tonnes of foodgrains to meet the requirements of an ever-increasing population. Conscious of these realities the Government

Convocation

green revolution which has no parallel in the history of mankind.

Today we are a proud country in the comity of nations because our country is not only self-sufficient in foodgrains, but is in a position to export food to other countries. This spectacular achievement has been rendered possible by the farsightedness and vision of our national leadership, the planners, the administrators, the

has prepared elaborate plans to achieve this target.

According to the new policy, the agricultural sector has been given the highest priority in the eighth plan. There are also plans afoot to make credit available for increasing agricultural output under rainfed conditions. The poor farm families belonging to scheduled castes and scheduled tribes will be given special loans

for meeting the cost of agricultural inputs.

Coming now to Himachal Pradesh, I must say at the outset that although there has been steady increase in foodgrains production, our progress has been nowhere comparable to green revolution areas. This is mainly because we have small and scattered land holdings, large rainfed areas, infested croplands and pastures, lack of agricultural implements suitable for hill farming conditions and low input purchasing capacity of our farmers.

During the last more than two decades the foodgrains production in the State has almost doubled. But we are still far from achieving the target of self-sufficiency. At present the State is producing 12 to 14 lakh tonnes of foodgrains annually. To feed the present population of about 5 million people in Himachal Pradesh, we need about 15 lakh tonnes of foodgrains. I feel that it should not be beyond the ingenuity and resourcefulness of our farmers and scientists to fill this small gap in the near future.

In the context of the present agricultural scenario in the State, crop husbandry is practised only for sustenance. The commercial farming of major foodcrops is neither possible nor feasible, because of the small land-holdings and the probability of their further subdivision and fragmentation. However, we cannot afford to be complacent in our efforts to boost the productivity of our food crops.

Agriculture is the major avocation of the people of Himachal Pradesh. In fact, the prosperity of 92 per cent of the population depends to a large extent upon the

productivity of food crops. About 76 per cent of the population falls directly in the agricultural sector, which contributes 43 per cent of the State's net domestic product. The State's agricultural and livestock produce yields around Rs. 300 crores annually, which is a higher contribution than that of other sectors. Maize, which is grown all over the State, contributes about Rs. 91 crores annually. Thus the pace of agricultural development has a very important bearing on the overall development of the State.

Himachal Pradesh is bestowed with diverse agro-climatic conditions comprising low hills, subtropical areas, valleys, mid-hills and high mountain ranges. The State is thus suitable for growing a vast array of crops, ranging from quality apples and mangoes to off-season vegetables and all types of foodgrains.

Himachal Pradesh, which is popularly known as the "Apple State of India", is on the threshold of becoming the "Fruit Bowl of the Country". The Lahaul valley has attained the world record for highest per hectare production of seed potato. The State is also a pioneer in the production of off-season vegetables, vegetable seeds, mushrooms and cash crops like ginger, saffron and kala zira. Another promising crop is soyabean, whose full potential as a mixed crop with maize or as sole crop for seed and oil is yet to be exploited. Apart from being nature's paradise, the State has given new concepts and models for the development of hill economies in the country.

The increase in foodgrain productivity, not only in Himachal Pradesh, but in the country as a whole, is mainly confined to

irrigated areas. No major breakthrough has yet been achieved in dryland agriculture, which is practised in more than 80% of the total cropped area in our State. It is a matter of utmost urgency that suitable technologies be evolved for dryland farming on watershed basis. Proper techniques of soil and water management have also to be evolved. New drought-tolerant varieties of crops for dryland farming conditions need to be developed. I would also draw the attention of the scientists towards the need to augment the production of oilseeds and pulses in the State. It is a matter of great concern that no breakthrough in this regard has been achieved so far.

The University has been operating an All-India Co-ordinated Project on Water Management for High Rainfall Areas. I understand that suitable technologies have been developed on the basis of which pilot watershed management projects can be taken up in selected catchment areas.

The Himalayan eco-system is facing accelerated degradation and a serious decline in productivity of alpine pastures is apprehended. There is urgent need to study the vegetative resources in the alpine region and their nutritive value. Studies on carrying capacity of our pastures also need to be undertaken. Grassland management practices need standardization. Rangelands have to be improved and research on fodder trees given more emphasis, since these form an important component of social forestry. We should thus put more emphasis on sustainable agriculture instead of exploitative agriculture, so as to preserve our unique ecological heritage.

The University has released

some improved varieties of rice, maize, wheat and other crops for cultivation in different areas of the State. I am sure the farmers are getting the benefit of these varieties by following the package of recommendations evolved by the University. However, I understand that nutrient and pesticide usage in the State is lower than the national average. This is a cause for serious concern. Efforts should be made to educate the farmers, particularly in the command areas of irrigation schemes, regarding the judicious and optimum use of fertilizers and pesticides.

Potato is one of the important cash crops of the State. We have especially earned a good name for seed potato. Of late, our supremacy in this field has been challenged by the farmers of the plains. We need to strengthen our research efforts to regain our pre-eminent position. I understand that various diseases and insect-pests, non-availability of quality breeder seed and unsatisfactory marketing practices are mainly responsible for this setback. Potato tuber moth created some problem in the Kangra valley this year. The Government moved expeditiously and resolutely to help the farmers in distress. However, some long-term measures like strengthening of research on various aspects of potato cultivation including development of disease-resistant, high-yielding varieties, have to be devised. The University should take up this challenge without losing time.

In Himachal Pradesh, livestock rearing is an important occupation which provides livelihood to a large section of the rural people. It is even more important for the tribal areas. The total livestock population of the State according

to the 1982 census is estimated to be 4.9 million. It can be said without reservation that such a large livestock population is much more than what the land can support. The State Govt. is, therefore, engaged in the task of upgradation of quality through natural servicing and artificial insemination techniques.

The problems facing livestock rearing are malnutrition, parasitic diseases and high morbidity and mortality rates. The veterinarians of this University can lessen the impact of these problems to a considerable extent. If animal disease surveillance and forecasting is properly undertaken by the University, it can mitigate our economic losses as well as provide guidance to progressive livestock farmers and veterinarians. A close watch needs to be kept on any new livestock diseases appearing in the State. Epidemiological studies on prevalent diseases have also to be undertaken. The acquisition of a mobile veterinary clinic by the University will help in carrying out such studies, as also in providing clinical services at the doorstep of the livestock owners. I am confident that with the establishment of the College of Veterinary and Animal Sciences, the University will soon be in a position to standardise practices for improving the productivity and health standards of our precious livestock population.

It is universally acknowledged that without adequate fodder and feed resources, animal husbandry cannot make much headway. The land available for cultivated forages is only 0.8 per cent of the cultivated land and there is no scope for bringing more area under such crops. Natural grasslands and pastures are the main sources of fodder in the State. About 1.19

million hectares of the State's geographical area is under permanent pastures and grasslands. Grazing is also done in forest areas and private *ghasnies*, the area of which is estimated to be around 1.53 million hectares. Thus the total area available for grazing is around 2.7 million hectares, which is about 49% of the total geographical area. However, the productivity of our pastures and grasslands is very low and overgrazing has further depleted their potential. I am happy to learn that the University is fully seized of the problem. I believe it recently organised a workshop on the improvement of pastures and grasslands of Himachal Pradesh. The government shall eagerly look forward to the recommendations which have emerged out of the deliberations of the Workshop.

With the intensification of cross-breeding programme, the chances of emergence of new diseases have increased considerably. Moreover, the cross-bred animals need specialized care and management. It is, therefore, essential that disease diagnosis services are strengthened at district headquarters and specialists on animal production and health provided. Besides, we must have our own Biological Product Centres to prepare different vaccines and antisera to cater to the needs of livestock owners. I would like the University scientists to work in close collaboration with the officers of the Animal Husbandry department in the matter of disease diagnostic activities and for the production of vaccines.

Although sheep and goats are among our precious resources, we all know that even today the old system of nomadic management is being followed. I feel that our scientists must come out with a

package of recommendations for modern sheep and goat husbandry, so that they no longer pose a threat to the forest cover and our fragile ecosystem. The wool quality of our sheep is also not upto the mark and research work for the fine wool production must be taken up by the University.

The pace of development of poultry in the State has not been very encouraging. It will be highly desirable to devise a suitable strategy for the development of this industry in the State.

Of late, rabbit rearing has been taken up by several farmers in our State as a remunerative avocation. I am glad to know that the University has initiated a research and development programme on rabbit rearing, both for meat and wool.

The yak is an important animal as a source of draught power for agriculture and general transportation in the high hills of the State. I believe that some useful work has been done by the University scientists in producing new breed with greater milk potential.

Pisciculture holds great promise in terms of animal protein supplement to our diet. Himachal Pradesh can gain substantially by scientific exploitation of its enormous water resources for fish farming. I am told that the University has taken up some work on fish culture, which should go a long way in creating new avenues for additional income to our people.

I understand that this University has, since its inception, developed several technologies suited to our hill conditions. While innovative research work should continue to be pursued with vigour, we should not forget that all our efforts will come to naught if

already known technologies do not percolate to the farming community. It is not a happy state of affairs when there is such a wide gap between the production potential achieved at the research farms and the actual production levels achieved in farmers fields. This gap must be bridged or narrowed down as expeditiously as possible. The present linkage between research and extension cannot be considered to be very satisfactory. Extension workers should use innovative approaches and communication media to reach out to the farming community. No doubt, the transfer of technology is a somewhat more difficult task here, as compared to the plains. New technologies are not adopted by the farming community on a large scale because of high costs, vagaries of weather, and small holdings. But it is also true that extension services are not reaching the grass-roots in an effective manner. There is thus an urgent need to develop low cost technologies compatible with environmental conservation strategies and suited to the socio-economic realities of our farming situation.

The extension education programmes of the University should lay greater emphasis on training courses in different aspects of scientific farming and agro-based avocations. I am glad that a series of training programmes in vegetable cultivation, bee-keeping, mushroom cultivation, livestock rearing, fisheries and rabbitry are being regularly organised at the main campus and Regional Research Stations of the University. However, to be of real utility, these training courses should be highly practical and should cater primarily to the needs of rural people residing in remote areas of the State.

In order to provide an effective extension cover, the State Govt. has embarked on a Rs. 21-crore World Bank-aided 'Training and Visit' Project in the State. The

project aims at strengthening the linkages between the research and extension services and the farmers. If technology transfer is properly effected, I am sure we can easily scale new heights in agricultural production and even achieve self-sufficiency. For this purpose, the ICAR should speedily establish Krishi Vigyan Kendras in all the district headquarters of the State.

In our State, rural women play a major role in most of the agricultural operations. Besides, they take the sole responsibility of home management. But they are comparatively much less exposed to modern scientific technology. In order to impart training to rural

women, the Government has planned to start a Rs. 5-crore scheme in collaboration with the European Economic Community. Under this scheme nearly 18,000 rural women will be trained in scientific farming and allied avocations over a period of four years.

The importance of providing professional education in home science to our rural women cannot be over-emphasized. The existing Department of Home Science in the University is trying to fulfil this need. It may be necessary to provide greater facilities and infrastructure to this Department, so as to make its activities more useful. □

Communication

Can Kaizen Work Here ?

(A poetic response to Prof. Rais Ahmed's Financial and other need of the Universities for scientific research published in *University News* of Oct. 30, 1989)

Dr. Rais Ahmed
Conducted a survey
In a small way,
To say
Two-thirds of the Universities have
Inadequate facilities
For scientific research;
With IITs
Placed slightly
In a better way.

His studies say,
More appalling
Is the Services
Which is bad
Everywhere and in every way.

He further says,
The institutions of higher education,
Employ
One-third of R & D manpower (in
the country) and
More than fifty percent of Ph. D;
But only with
Six-percent of resources (available
for R & D)
To do their work !!

He estimates,
To support
Deliberately in the 8th plan
Advanced study and Research,
On the basis of Twentyseven
Universities studied
And by an educated guess—
A requirement of
Rupees one hundred eighty crores
As one-time expenditure

On hardware (Laboratory,
Library...)

For all in the country; and
A similar figure
For Services;

To make a grand tally of
Rupees Three hundred sixty crores.
This alone will not do,
Organised effort—

To raise value system
To improve human relations
To provide linkages between
institutions.

Are all
All the more necessary,
He says.

Can Kaizen—
The Japanese magic for success
Which conveys the message
Success comes from
Cumulative effect of
Daily innovations
And not from
Sweeping changes—
Work here ?

Can Kaizen—
Representing philosophy of
Challenging constantly
the existing—
Be applied to the two
Identified deficient
Non-monetary factors—
Motivation and Atmosphere" ?
Could we take small steps
To begin a long journey ?

V. Narasimhan
Registrar

Sree Chitra Tirunal Institute
for Medical Sciences & Technology
Trivandrum-11

Training for Administrative Personnel

The Centre for Human Resource Development of the Delhi University organised a 4-week training programme for the administrative personnel. Inaugurating the programme, Prof. B.C. Pandon, Dean, Faculty of Management Studies emphasised the need of such training programmes since universities were facing unusual challenges for change. There were financial constraints, unrest among students and a growing need for scientific monitoring and control systems. He touched upon various aspects of human resource development with focus on motivation and leadership skills. Prof. S. Neelamegham, Dean, Planning and Administrative Reforms, described in detail the objectives and roles of HRD Centre in improving the overall efficiency and effectiveness through inducting fresh ideas, knowledge and enlightenment during training programmes.

Prof. M. Adhikary presented a vivid picture of job effectiveness, crystallising important factors regarding knowledge, skill and attitude. He emphasised the evergrowing need of right man for the right job. Dr. S.S. Rana, Dean of Colleges, emphasised the need of discipline in students, administrative personnel and teachers and provided excellent insight into statutes, ordinances and regulations with illustrations. Dr. Ravi P. Bhatia, Controller of Examinations, presented the blueprint of the examination system in the university, narrating the technical problems involved in conducting the examination.

Mr. K. Muthukumar, Finance Officer, depicted a brief picture of entire financial system of the

University, projecting the total conceptual framework and gave useful tips in improving the efficiency and effectiveness. Participants were exposed to the deeper aspects of financial constraints in the system and remedies were suggested.

Mr. R.L. Malhotra, Management Consultant, discussed the ways and means to improve office productivity and useful concepts of filing and storage, paper work mechanism, office layout and the role of the office supervisor in boosting the morale by providing right direction and leadership to the subordinates.

Mr. M.M. Kapoor, Deputy Director, ISTM gave details about job simplification, job analysis with illustrations with emphasis on achievements of targets within the specified time limits and the need of understanding today's complex and highly technological office environment.

Mr. S.R. Joshi, Joint Director, ISTM gave useful tips on noting and drafting including writing for better communication, since, proper noting plays a vital role towards achieving the results. He gave guidelines for noting in order to be precise and to the point since excessive noting is an evil which should be avoided.

Mr. D.S. Sexena, former Joint Director ISTM spoke on reservation policies for SC/ST and other categories in admission, recruitment and promotion and presented useful statistical data compiled by him. He informed about the latest circulars from the Government of India, regarding Government Policies with respect to reservation for SC/ST.

Prof. P.B. Mangla of the Library and Information Science Department discussed in detail the functioning of faculties, board of research studies, academic committees etc., and their interrelationship. His exposition highlighted the working of various departments and faculties and the need for proper coordination and co-operation through inculcation of positive and receptive attitudes.

Mr. S.K. Mandiratta, Secretary, Election Commission of India mentioned the detailed steps of counting procedure in election to executive council and academic council and explained in detail the single transferable system of voting involving various steps and procedures.

Mr. J.C. Kochhar, Officiating Registrar, talked about the problems and issues involved in admission, migration and re-admission, etc. He also highlighted the general administrative problems and their solutions.

Mr. Jagdish Verma, Management Consultant, discussed various dimensions of time management and listed the factors responsible for wastage of time and suggested various measures to make best use of one's time. The talk was further supplemented by histograms, cartoons and many other illustrations taken from real life situations.

Dr. K. Mamkoottam spoke on performance appraisal system and discussed all the factors involved in applying latest concepts of the system with emphasis on targets setting, scheduling the performance and self-appraisal. The talk motivated the participants and made them comprehend the utility of performance appraisal proforma, recently designed by the University.

Mr. V. Ramamurthy, Joint Finance Officer, discussed in detail about university budgeting, LTC rules, T.A. rules and orientation to retirement benefits, etc. He touched all the important rules and regulations concerned with above topics and further supplemented his discussions with illustrations of practical nature.

Mr. C.L. Gupta, Internal Audit Officer, enlightened the participants on rules and regulations regarding pay fixation and also gave excellent conceptual exposition about internal audit and audit report on university accounts with its processing and presentation to various committees.

Mr. R.S. Raghavan, Management Consultant talked about computerised pay rolls and pension accounting system and also discussed pension scheme monitoring system with the help of P.C.'s installed in his section.

Prof. K.D. Sharma, Director, Computer Centre, kept the participants spell bound by his exciting and informative talk on micro-computers and office automation.

Prof. K D. Gangrade, Pro-Vice-Chancellor in his valedictory address emphasised the ever growing need of training programmes for Administrative Personnel. While narrating the goals and various components of university, Prof. Gangrade stressed the need of inter-departmental cooperation, team spirit and inculcation of constructive attitudes towards solving university problems. He also distributed certificates to the participants.

The programme was designed

and co-ordinated by Mr. V.K. Rastogi, Deputy Director, Centre for Human Resource Development, Delhi University.

Entrepreneurship Development Programme for Women

"To attain economic self-sufficiency, entrepreneurship is the most relevant mode of income-generation for women so that they could earn for themselves, for their families and contribute to the development of society at large", said Dr. (Mrs.) Radha Thiagarajan, Vice-Chancellor, Alagappa University while delivering the keynote address at the three-week Project Formulation Workshop organised recently by the Department of Women's Studies, Alagappa University in collaboration with the Indian Bank. The workshop was organised to promote entrepreneurship among women as part of its curriculum. The objectives set forth were identification of products, market survey, assessment of needed capital investment, and formulation of a viable project.

Shri M. Gopalakrishnan, Chairman and Managing Director of the Indian Bank, said that a well-conceived Project is an essential ingredient in entrepreneurship development. He dwelt on the role of Indian Bank in promoting developmental programmes and assured the participants of the Bank's guidance and assistance in setting up their industries.

In the Technical Sessions, the participants were oriented in

- (1) the essentiality of a periodical market survey as the index of the consumer's needs, the supply

position, prevalent marketing practices besides helping the aspirants to devise their own marketing plans and strategies;

- (2) the items covered under consumer electronics, industrial electronics, medical electronics and computer data processing;
- (3) manufacturing of mechanical spare products;
- (4) application of plastic and chemical materials;
- (5) food processing and food preservation; and
- (6) glass and ceramic products.

Dr. S.V. Chittibabu, former Vice-Chancellor of the Annamalai University, in his valedictory address remarked the empowerment of Women means knowledge of resources; access to means of better living; self-confidence, and positive strength to break the barriers of customs, beliefs and practices. Entrepreneurship, he averred, needs empowered women and also endows them with power and strength. He said, "Liberation of women is a cooperative activity of both men and women, and not a strategical confrontation between them".

Refresher Course in Political Science

A five-week Refresher Course in Political Science was recently inaugurated at the Academic Staff College of the Jawaharlal Nehru University. In his inaugural address, Prof. M S. Agwani, JNU Vice-Chancellor, gave an overview of the rapid changes taking place in international relations today.

About 35 teachers from different colleges and universities from

Northern Eastern States, West Bengal, Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh, Punjab, Himachal Pradesh and Delhi are taking part in this course.

Each course at the Academic Staff College is designed to have a special focus. In this course the focus is on international relations in view of the fast changing situation in international arena. A special effort has been made to have focus on the third world countries.

National Sanskrit Convention 1989

The National Sanskrit Convention was held in New Delhi on August 19, 1989 under the auspices of Sri Sri Sitaramdas Omkarnath Sanskrita Siksha Samsad of Calcutta and Loka Bhasha Prachara Samiti of Puri. His Excellency Dr. Shankardayal Sharma, Vice-President of India, inaugurated the Convention, which was presided over by Hon'ble Justice E.S. Venkataramaiah, Chief Justice of India.

The objective of the convention was to create a countrywide movement in favour of preservation of Sanskrit, so that this great language is retained as a compulsory subject in the school curriculum. Sanskrit, as is known, has been listed along with all Modern Indian Languages in the Eighth Schedule of Indian Constitution.

The convention adopted the following resolutions and made an appeal to all the Departments of Sanskrit in the universities to explore the possibilities of adopting similar resolutions for onward submission to the Government for appropriate action.

(1) In view of the cultural

importance and Pan-India character of Sanskrit and with a view to arresting the growth of fissiparous tendencies and linguistic parochialism and to effecting consolidation of National Integration, Sanskrit, which is already one of the languages recognised by the Constitution, should be declared as an additional official language besides Hindi and English to be used for such public purposes as may be feasible, as recommended by Sanskrit Commission.

(2) In view of the importance of Sanskrit for the understanding of the Culture and the national genius of India, for the purposes of School Education and application of the three-language formula, Sanskrit should be given due status as with other languages listed in the Eighth Schedule of the Constitution of India.

(3) To enable the country to project its culture abroad, the Government should take steps to appoint in Indian Embassies abroad persons, specially competent in Sanskrit Literature and Culture, as Cultural Attaches. Suitable mechanism should be evolved for propagation of Sanskrit abroad by organizing study-groups in Indian Embassies.

(4) In view of the fact that Sanskrit provides rich material for study of such branches of learning, as Astronomy, Mathematics, Medical Sciences, Art and Architecture, the Universities/Institutes should have

the texts of these subjects written in Sanskrit so that the uninterrupted tradition of the country in areas can be revived and revitalised.

(5) The Government should bring Sanskrit under the purview of the Scheme initiated by National Literacy Mission, so that functional literacy in the area of Sanskrit can be inducted into willing learners through organisation of literacy centres in the area of Sanskrit.

(6) There should be equality in the matter of status, privileges and emoluments between the teachers attached to Universities and those attached to Traditional Centres of Learning and that the distinction between the Sanskrit Title courses and the General degree courses should be abolished.

(7) Colleges imparting instructions in Sanskrit through traditional method should be declared as Institutions fit to receive Central assistance through such agencies as the University Grants Commission/Council of Social Science Research/Indian Medical Council/Council of Scientific & Industrial Research, etc.

(8) Additional funds should be placed at the disposal of Rashtriya Sanskrit Samsthan and Rashtriya Veda Vidya Pratisthan to enable them to provide additional grants to Oriental Colleges and Veda Vidyalayas and to bring the value of Fellowship admissible to Research workers in Sanskrit

at par with the value of Fellowship sanctioned by the University Grants Commission.

- (9) The Central Sanskrit Board should be revitalised and the recommendations formulated by this Board should be made binding on the Ministry of Human Resource Development in its Departments of Education and Culture.
- (10) Special steps should be taken to preserve oral tradition of the Vedas, as also to decipher scientific and technological truths contained in Vedic Literature, so that the scientific approach of the Vedas and their ability in presenting verifiable truths can establish themselves.
- (11) Immediate steps should be taken by the Government to encourage original creations in Sanskrit by assimilating modern thought-currents, both Indian and Western and Sanskrit translation of representative works written in Indian and foreign languages.
- (12) The pattern of assistance admissible to voluntary agencies should be restructured, so that they become entitled to large quantum of grants in order to enable them to interact fruitfully with the University system of Sanskrit Education.
- (13) To enable the country to pool its resources available in the field of Sanskrit learning, the Ministry of Human Resource Development/Rashtriya Sanskrit Samsthan/Rashtriya Veda Vidya Pratishthan should prepare Directories of

Individuals/Institutes working in the areas of Sanskrit.

Lighter Syllabi for B.A. Course

Subject to the approval of the Academic Council, the College Development Council of the Panjab University, at its meeting held at Chandigarh is reported to have approved a proposal of the com-

mittee of college Principals to lessen the burden of the students of the new B.A. course by dividing the syllabi of communication skills and general awareness course over three years. The proposal provides for communication skills in English in the first year, communication skills as an optional language in the second year and general awareness course in the third year. The three elective subjects will continue as before.

News from Agril. Varsities

WOMEN IN AGRICULTURE

The Home Science College of Haryana Agricultural University celebrated 4th December as "WOMEN IN AGRICULTURE DAY" under the auspices of International Federation for Women in Agriculture (IFWA). A series of activities including exhibition of books on the subject, declamation contest, poster session and another exhibition of improved agricultural implements that can be used by women very easily, were held on the occasion. A seminar on the role of women in agriculture was also organised, with Dr. D.P. Kataria, Professor and Head of Agricultural Engineering Department as chief guest. In his address, Dr. Kataria said that though women had played a very significant role in the field of agriculture we had not been able to utilise their power in this field like the developed countries where they used all improved agricultural implements to increase their farm production. In India they are employed in jobs like weeding, hoeing, cotton delinking etc., and not like sowing and thrashing. Dr. R.K. Punia, Head of the Department of Sociology and

Dr. A.C. Kapoor, Dean of the College of Home Science also spoke on the subject and emphasised the need for application of new agricultural technology in the relevant fields.

Phytopathological Society Meets at HAU

The annual meeting of Indian Phytopathological Society (North Zone) and the symposium on "Chemotherapeutic Control of Plant Diseases" was recently inaugurated at the Haryana Agricultural University by Professor R.S. Mehrotra, President (elect), Indian Phytopathological Society. In his address Prof. Mehrotra stressed the need for a realistic and practical approach to various problems. For this, he said, we have to bring reforms in our teaching, research and extension services.

Prof. Mehrotra further said that Agricultural education had improved considerably during the last few years but the challenges faced by society because of technological advancement were also

quite frightening. There is need to strike a balance between the advances in science and the welfare of society.

Dr. S.P.S. Karwasra, Director of Research, HAU, who presided, felt that phytopathological society, national and international research institutes and universities need to develop a system of coordinated research and cooperative active information exchange system since

we could not afford to do research in isolation from others.

According to Dr. M.P. Srivastava, President, Indian Phytopathological Society, the 2-day symposium discussed various aspects of phytopathology like research, teaching, extension, field diagnosis, plant disease clinics, feedback of scientific knowledge, use of electronic media for dissemination of information, etc.

News from Abroad

Reauthorization of the Higher Education Act

The higher education community has prepared a series of reports on issues relating to the reauthorization of the Higher Education Act, which expires at the end of fiscal year 1991. The American Council on Education (ACE) and other national higher education associations will use the reports to develop recommendations for presentation to congressional authorizing committees when hearing begin next year.

Members of the higher education community served on six task forces created last spring to review provisions of the Higher Education Act, identify issues, and develop the reports. Four of those task forces considered aspects of student aid, including need analysis and the delivery system, treatment of low and middle income students, and graduate and professional programs. The other task forces examined currently authorized categorical programs—those designed to foster institutional program development such as adult education, international studies, and cooperative education—and those intended to strengthen institutional resources, such as facilities, libraries, developing institutions, and historically black colleges.

Charles B. Saunders, Jr., ACE,

senior vice president, stressed that the task force reports are prelimi-

News from UGC

INSAT 1-B Programme of UGC

Between 27th December to 30th December, 1989 the following schedule of telecast on higher education through INSAT 1-B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 12.45 p.m. to 1.45 p.m. and 4.00 p.m. to 5.00 p.m. The programme is available on the TV Network throughout the country.

1st Transmission

12.45 p.m. to 1.45 p.m.

27.12.89

"N.D.T. Series—I: Advantages"
"Importance and Significance of French Revolution"
"Crocodiles—The Living Dinosaurs"

28.12.89

"Computers Around Us"
"The Colourful World of Minerals"
"Understanding Poetry"

29.12.89

"Space Communications—VI: Ground Segment"

nary. "Their recommendations do not represent a consensus of the national associations," he said. "Rather, they identify issues and concepts for further consideration and debate, not only within the higher education community but with members of Congress and their staffs, as well as with officials of the Education Department."

The Education Department will complete a series of hearings in Washington this week to solicit comments from the public on how higher education programs are working. Thirteen department task forces have been created to study reauthorization issues. Secretary of Education Lauro F. Cavazos has set February, 1991 as the deadline for completing the department's recommendations.

"Defence Mechanisms—Denial of Reality and Displacement"
"Protecting the Ecosystem"

30.12.89

"Abhinaya"
"University Round Up"
"The Pursuit"

2nd Transmission

4.00 p.m. to 5.00 p.m.

27.12.89

"Brick Panel Roofing"
"The Scorpion"
"Modern Genetics and Human Welfare—V"

28.12.89

"Computer Quiz"
"An End to Pounding"
"Literature and Language—II"

29.12.89

"Vedic Mathematics—V"
"International Politics: India's Responses"
"A Talk with Dr. J.C. Kothari"

30.12.89

"Abhinaya"
"University Round Up"
"The Pursuit"

AJU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Trama, Poonam. *Some contributions to torsion units in integral group rings*. Panjab. Prof. I.S. Luthar, Department of Mathematics, Panjab University, Chandigarh.

Physics

1. Akhaury, Praveen. *Quark gluon plasma and relatively heavy ion collisions*. Delhi. Dr. D.P. Goyal, and Dr. R.S. Kaushal, Department of Physics, University of Delhi, Delhi.
2. Hoode, Jagbir Singh. *Theoretical particle physics*. Delhi. Dr. A.N. Mitra, and Dr. D.S. Kulshreshtha, Department of Physics, University of Delhi, Delhi.
3. Rakesh Rani. *Atomic inner shell ionization processors and their analytical applications*. Panjab. Prof. P.N. Trehan, Department of Physics, Panjab University, Chandigarh and Dr. P.C. Mangal, Department of Biophysics, Panjab University, Chandigarh.
4. Ramakrishnan, G. *Quality control and physical parameters of diagnostic units*. Kerala. Dr. V. Padmanabhan, Regional Cancer Centre, Medical College, Trivandrum.
5. Sanju. *Non linear phenomena*. Delhi. Prof. P.K. Srivastava, Department of Physics, University of Delhi, Delhi.

Chemistry

1. Ashok Kumar. *Studies in synthesis of chiral B-lactams and related biologically active compounds*. Panjab. Prof. I.R. Trehan, and Dr S.S. Bari, Department of Chemistry, Panjab University, Chandigarh.
2. Dikshit, Girish. *Novel cytotoxic terpenoidal lactones from some indigenous compositae plants*. HS Gour. Prof. V.K. Saxena.
3. Garg, Vijay Kumar. *Studies in heterocyclic compounds*. Delhi. Prof. V.K. Ahluwalia, Department of Chemistry, University of Delhi, Delhi.
4. Gokhle, Uma Shankar. *Chemical and biological studies of plant products and other organic compounds*. HS Gour. Dr. O.P. Chourasia, Lecturer, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.
5. Jain, Rishabh Kumar. *Studies on oils, glycosides, proteins and carbohydrates of some plants and synthesised organic compounds*. HS Gour. Dr. S.P. Shrivastava, Lecturer, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.
6. Jain, Vijay Kumar. *Voltammetric studies on some electrochemical physicochemical properties of some transition metals and rare earths*. HS Gour. Dr. K.S. Pitre, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

7. Madhuresh Kumar. *Synthetic investigation in asymmetric synthesis of B-lactams and related biologically active compounds*. Panjab. Prof. I.R. Trehan, and Dr. S.S. Bari, Department of Chemistry, Panjab University, Chandigarh.

8. Misra, Divya. *Studies on new derivatives of zeolites*. HS Gour. Prof. S.P. Benerjee, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

9. Mishra, Sandhya. *Chemical and antimicrobial studies of plant products and other organic compounds*. HS Gour. Dr. J.T. Rao, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

10. Pawar, Vinita. *Chemical and biological activity studies of plant products and synthesised organic compounds*. HS Gour. Dr. J.T. Rao, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

11. Pradkar, Kritika. *Studies on chemical analysis and biological properties of plant products and other organic compounds*. HS Gour. Dr. J.T. Rao, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

12. Rode, Madhuri. *Chemical analysis and biological activities of plant products and other organic compounds*. HS Gour. Dr. J.T. Rao, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

13. Sharma, Mukesh Kumar. *Synthesis of bioactive heterocyclic compounds*. Delhi. Prof. V.K. Ahluwalia, Department of Chemistry, University of Delhi, Delhi.

14. Shrivastava, Rashmi. *Studies on lanthanide (III) mixed ligand complexes*. HS Gour. Prof. M.C. Saxena, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

15. Telang, Sanjay Kumar. *Studies on Copper (II), Nickel (II) and Cobalt complexes with nitrogen containing ligands*. HS Gour. Dr. Gopal Narayan, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

16. Verma, Neerja. *Voltammetric trace determination of some inorganic and organic substances in samples obtained from natural origin*. HS Gour. Dr. K.S. Pitre, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

17. Verma, Yogita. *Studies on copper (II), Nickel (II) and Cobalt (II) complexes with nitrogen containing mono and polydentate ligands*. HS Gour. Dr. Gopal Narayan, Reader, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

Earth Sciences

1. Jayssree, J. *Studies on bernstein type rational operators*. Kerala. Dr. Y. Sitaraman, Prof., Department of Geology, University of Kerala, Kariavattom.

2. Mathai, Thomas. *Geology, structure and geo-chemistry of the achenooil tectonic sone, Kerala, India*. Kerala. Dr. Roy Chacko, Reader, Department of Geology, University of Kerala, Kariavattom.

3. Srivastava, Rahul Prakash. *Eocene ctenodactylid rodents from India: A contribution to their taxonomy, evolution and enamel ultrastructure*. Panjab. Prof. Ashok Sahni, Department of Geology, Panjab University, Chandigarh and Dr. Kishor Kumar, Scientist-B, Wadia Institute of Himalayan Geology, Dehradun.

Engineering & Technology

1. Tare, V. *Evaluation of integrated traffic management schemes for urban network*. Devi Ahilya. Dr. O.P. Bhatia, Prof. and Head, Department of Civil Engineering, Shri G.S. Institute of Technology and Science, Indore and Dr. S.L. Dhingra, Prof., Indian Institute of Technology, Powai, Bombay.

BIOLOGICAL SCIENCES

Biochemistry

1. Jyotdeep Kaur. *Effect of chronic ethanol ingestion on intestinal microvillus membrane in rats with special reference to epithelial cell surface glycosylation and macromolecular uptake*. Panjab. Dr. Akhtar Mahmood, and Dr. J.P. Nagpaul, Department of Biochemistry, Panjab University, Chandigarh.

Microbiology

1. Chaudhary, Anita. *Study and control of biological slimes in paper mills*. Panjab. Dr. J.K. Gupta, Department of Microbiology, Panjab University, Chandigarh.

Botany

1. Gopalakrishna Pillai, P. *Gonsanguinity studies in certain inbreeding castes and communities in the Trivandrum and Kanyakumari Districts*. Kerala. Prof. P.M. Mathew, Department of Botany, University of Kerala, Kariavattom.

2. Kuldip Kaur. *Pest and diseases of Pleurotus species under cultivation*. Panjab. Prof. S.C. Kaushal, Department of Botany, Panjab University, Chandigarh.

3. Saadi, A. *Plant growth and development*. Delhi. Dr. H.Y. Mohan Ram, and Dr. N.S. Rangaswamy Department of Botany, University of Delhi, Delhi.

4. Salwan, Kiran Bala. *On the utility of green-pod culture in some Indian orchids together with a note on the morphogenetic changes in and the nutritional requirements of their embryos in vitro*. Panjab. Prof. S.P. Vij, Department of Botany, Panjab University, Chandigarh.

5. Saxena, Sanjay. *In vitro studies on forest species*. Delhi. Prof. S.S. Bhojwani, Department of Botany, University of Delhi, Delhi.

6. Suri, Meena. *Involvement of polyamines, auxins and photoperiod with adventitious root development in stem cuttings of Ficus infectoria*. Panjab. Prof. K.K. Dhir, Department of Botany, Panjab University, Chandigarh.

7. Vyas, Poonam. *Reproductive biology of some flowering plants*. Delhi. Dr. K.R. Shivanna, Department of Botany, University of Delhi, Delhi.

Zoology

1. Sharma, Meenu. *Bioassay, histopathological and biochemical effects of newly synthesized juvenile hormone analogues on the mosquito, Culex pipiens quinquefasciatus Say*. Panjab. Dr. P.K. Mittal, Lecturer, Department of Zoology, Panjab University, Chandigarh.

2. Upma. *Immunological studies on some antigens from a sexual erythrocytic stages of rodent malaria parasite, Plasmodium barohel*. Panjab. Dr. H.S. Banyal, Reader, Department of Zoology, Panjab University, Chandigarh.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Bhattacharyya, Anindita. *Some investigations in the theory of Eigen function expansions*. Calcutta.
2. De, Prasanta Kumar. *On mixed boundary problems of elasticity*. Burdwan. Dr. Saktikanta Chakraborti, Prof., and Dr. Manindramohan Mitra, Lecturer, Department of Mathematics, University of Burdwan, Burdwan.
3. Ramalakshmi, D. *Graceful valuations of graphs*. Venkateswara. Dr. Vangipuram Srinivasan, Department of Mathematics, SVU College, Tirupati.
4. Satyanarayana Rao, Ayyalasomayajula. *Some contributions to partial differential equations and non-linear boundary value problems*. Andhra.
5. Shankar Lal. *A study of error locating and unidirectional error correcting codes*. Delhi.
6. Shivashankara Murthy, J.K. *Some problems of flow through and past a porous medium*. Bangalore. Dr. N. Rudraiah, Chairman, Departmental Council of Mathematics, Central College, Bangalore.

Statistics

1. Narasimhulu, Y.C. *On some release rules in dam models*. Venkateswara. Prof. M.P. Sastry, Prof. (Retd.), Department of Statistics, SVU College, Tirupati.
2. Noor, Hamed Saad. *Survival and competing risk theory*. Delhi.

Physics

1. Arun Pratap. *Structure and transport properties of liquid metals and their alloys*. Rajasthan.
2. Balakrishna, K.M. *K-flourescence studies in the region of rare earth and heavy elements*. Mangalore. Prof. N. Lingappa, Head, Department of Physics, Mangalore University, Mangalore.
3. Janakiram, V.L. *Acoustics of musical instruments: Study of tembura*. Venkateswara. Prof. L. Ramamurthy, Department of Physics, SVU College, Tirupati.
4. Khanna, Pramod Kumar. *Development characterisation and interface analysis of thick film segmented resistor structure*. Rajasthan.
5. Madhusoodanan, K.N. *Photoacoustic investigation of the optical and thermal properties of selected amorphous chalcogenide semi-conductors*. CUST. Dr. Jacob Philip, Reader, Department of Physics, Cochin University of Science and Technology, Cochin.
6. Parjit Shamasher Singh. *Experimental investigation of L-X-ray emission phenomenon by low energy charged particles*. Punjabi. Prof. C.S. Khurana, Department of Physics, Punjabi University, Patiala.

7. Subha Rao, Panuganti Satya Venkata. *Structural and electrical properties of rare earth ion doped T.B. type ferroelectric barium sodium niobate ceramics*. Andhra.

Chemistry

1. Ali Asghar. *Synthesis in heterocyclic compounds*. Amravati. Dr. V.S. Jamode, Department of Chemistry, Vidarbha Mahavidyalaya, Amravati.
2. Arora, Kamlesh Kumar. *Iron (II) catalysed oxidations by peroxy-disulphate: A kinetic study*. Rajasthan.
3. Bajpai, Shikha. *Studies on metallic complexes: Extrastabilisation of mixed ligand complexes with amino acids*. HS Gour. Prof. M.C. Saxena, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.
4. Bhagi, Ajay Kumar. *Synthesis and characterization of titanium (iv) and Zirconium (IV) complexes with nitrogen, oxygen or Sulphur donor ligands*. Delhi.
5. Bhalla, Manju. *Chemical investigation of some Indian plants*. Rajasthan.
6. Bhattacharyya, Subhendusekhar. *Determination of metal ions using liquid chelating exchanger and atomic absorption technique*. Burdwan. Dr. Arabinda Kumar Das, Reader, Department of Chemistry, University of Burdwan, Burdwan.
7. Dan, Santirani. *Extraction with liquid exchanger and AAS determination of trace and ultratrace elements*. Burdwan. Dr. A.K. Das, Reader, Department of Chemistry, University of Burdwan, Burdwan.
8. Dixit, Purnima. *Studies on organotin and organolead derivatives of biologically active ligands*. Rajasthan.
9. Ghoshal, Monotosh Nityanand. *Preparation and characterisation of rare earth mixed complexes*. Nagpur. Dr. V.D. Deshpande, Department of Chemistry, Visweswaraya Regional College of Engineering, Nagpur.
10. Hawa, Sharwan Kumar. *Studies on analytical applications of Sulphur containing ligands*. Rajasthan.
11. Jain, Sunita. *Structural studies on natural products*. Rajasthan.
12. Jain, Vinod Kumar. *Potentiometric studies on the complexation behaviour of biologically active-o-vanillinsemi-and-thiosemicarbazone towards bivalent and trivalent metal ions*. Delhi.
13. Khare, Ajay Kumar. *Studies of zeolite molecular sieves*. HS Gour. Prof. S.P. Banerjee, Head, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.
14. Kuncheria, Babu. *Studies on some coordination compounds of thorium (IV) nitrate*. Kerala. Dr. P. Indrasenan, Reader, Department of Chemistry, University of Kerala, Trivandrum.
15. Manjula, S. *Study of polymerization characteristics of naturally occurring (renewable) monomers*. Kerala. Dr. C.K.S. Pillai, Scientist 'E', RRL Council of Scientific and Industrial Research, Trivandrum.

16. Mohammed Aminul, Huq. *Synthetic studies in insect sex pheromones*. Panjab.

17. Nadagouda, Gurling Satappa. *Physico-chemical investigations on meta complexes*. Karnatak. Dr. T.R. Goudar, Reader, Department of Studies in Chemistry, Karnatak University, Dharwad.

18. Onyckachi, Echeme Johnbull. *Synthesis, structural and physiological studies of some organophosphorus heterocyclic compounds*. Venkateswara. Prof. M.S.R. Naidu, Department of Chemistry, Sri Venkateswara University College, Tirupati.

19. Radhika, L.G. *Energy from agricultural wastes*. Kerala. Dr. P.N. Mohandas, Scientist, RRL, Council of Scientific and Industrial Research, Industrial Estate, P.O. Pappanawode, Trivandrum.

20. Saha, Arogya Varam. *Isopolyniobic acid: The key to the understanding of the aqueous chemistry of niobium*. D.Sc. Calcutta.

21. Sobhana Devi, G. *Studies on some Schiff base complexes of uranyl nitrate*. Kerala. Dr. P. Indrasenan, Department of Chemistry, University of Kerala, Trivandrum.

22. Trivedi, Mahesh Amrutlal. *Properties of copolymers*. Bhavnagar. Dr. R.S. Patel, Reader, Department of Chemistry, Bhavnagar University, Bhavnagar.

23. Verma, Sangeeta. *Coordination chemistry: Solution stabilities of mixed ligand lanthanide (III) complexes*. HS Gour. Prof. M.C. Saxena, Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

24. Yadav, Prakash Chandra. *Studies on redox reactions: Determination of sulphur, nitrogen and oxygen containing organic compounds via functional group*. Durgawati. Dr.

Ashutosh Shrivastava, Department of Chemistry, Rani Durgawati Vishwavidyalaya, Jabalpur.

Earth Sciences

1. Channabasappa, S. *Geology, geochemistry and origin of banded iron formations of Bababudan Schist Belt, Chikmagalur District, Karnatak, India*. Bangalore. Dr. B.S. Shiva Kumar, Department of Geology, Jnana Bharathi Campus, Bangalore University, Bangalore.

2. Nagaraju, A. *Biogeochemistry of some parts of the Nellore Mica Belt, Andhra Pradesh, India*. Venkateswara Prof. E.A.V. Prasad, Department of Geology, Sri Venkateswara University College, Tirupati.

3. Virender Singh. *A geological study of the tal formation of Mussoorie and Garhwal synclines with contribution on palaeontology and stratigraphy of boulder slate sequence of Bijni tectonic unit*. Panjab.

Engineering & Technology

1. Bandyopadhyay, Malaykumar. *The effect of vibration and mechanical treatment of the characteristics of iron-carbon-silicon alloys*. Calcutta.

2. Baskaran, P. *Some studies on characterization of composite materials and stresses in composite plates*. Anna.

3. Kandasami, G.S. *Application of acoustic emission technique to studies of machining-processes*. Anna.

4. Kathuria, Poonam. *Studies on degradation of high polymers*. Delhi.

5. Pankaj Kumar. *Kinetic studies on the degradation of high polymeric materials*. Delhi.

Central Building Research Institute

(Council of Scientific & Industrial Research)

ROORKEE (U.P.) Pin 247 667

ADVERTISEMENT No. 5/89

Applications are invited for the following posts:

1. **SCIENTIST 'B' (Civil Engg.)-Group IV (1)-4 posts** (2 posts are reserved for SC & 1 for ST) Pay Scale Rs. 2200-75-2800-EB-100-4000.

Minimum Qualifications: 1st class B.E./B.Tech. degree in Civil Engg., from a recognised University/Institute.

Desirable: One year experience in Design Office or Civil Engineering construction with a reputed firm/organisation.

Job Requirement: The candidate will be required to work on R&D and sponsored Projects involving structural design of buildings and/or construction management or extension of CBRI developed techniques in the field. The incumbent can be posted in any one of the Extension Centres located at Ahmedabad, Bhopal, Calcutta, Hyderabad, Delhi and Trivandrum.

2. **SCIENTIST 'B' (Architecture)-Group (IV) (1)-3 Posts** (1 post is reserved for SC & 1 for ST) Pay

Scale Rs. 2200-75-2800-EB-100-4000.

Minimum Qualifications: 1st class B.Arch. Degree from a recognised University/Institute.

Desirable: One year experience of architectural designing and detailing in firm/organisation of repute. Knowledge/experience of Computer Graphics preferred.

Job Requirement: The candidate will be required to work on R&D programmes & sponsored research projects in the field of Architecture and Planning.

3. **SCIENTIST 'B' (Geotechnical Engineering)-Group (IV) (1)** One post (reserved for SC) Pay Scale Rs. 2200-75-2800-EB-100-4000.

Minimum Qualifications: 1st class B.E./B.Tech. degree in Civil Engg., from a recognised University/Institute, Geotechnical Engineering as a main subject.

Desirable: Brilliant academic record plus one year experience with an organisation of repute in the field of Geotechnical Engg., Experience in Geotech.

Teaching, research and testing would be an added advantage.

Job Requirement : The candidate will be required to work on R&D programmes in the field of Geotechnical Engg.

4. SCIENTIST 'B' (Geophysics/Geology)-Group IV (1)-2 Posts (1 post is reserved for SC) Pay Scale Rs. 2200-75-2800-EB-100-4000.

Minimum Qualification : 1st class M.Sc. in Geology/Geophysics from a recognised University/Institute.

Desirable : Brilliant academic record with 1-2 years experience of research/teaching on the geological/geophysical surveying and mapping of hazardous zones of the Himalayan regions. Experience/training in the application of modern engineering techniques for surveying would be an asset.

Job Requirement : The candidate would be required to work on the R&D & sponsored projects involving investigation of landslide areas and their control measures.

5. SCIENTIST 'B' (Chemistry)-Group IV (1)-2 Posts (1 Post is reserved for SC) Pay Scale Rs. 2200-75-2800-EB-100-4000

Minimum Qualifications : 1st class M.Sc. or Ph.D. in Chemistry/Material Science with good academic career.

Desirable : One year experience of research/teaching in an organisation of repute.

Job Requirement : The candidate will be required to work in R&D on building materials.

6. SCIENTIST 'B' (Chemical Engg.)-Group IV (1)-2 Posts (1 post is reserved for ST) Pay Scale Rs. 2200-75-2800-EB-100-4000.

Minimum Qualifications : 1st Class B.E./B.Tech. degree in Chemical Engg. from a recognised University/Institute.

Desirable : Brilliant academic record plus one year experience in development of chemical processes/technology in an organisation of repute.

Job Requirement : The candidate will be required to work in the area of fire research as applied to building materials and components.

7. SCIENTIST 'B' (Computer Hardware)-Group IV(I)-1 post. Pay Scale Rs. 2200-75-2800-EB-100-4000.

Minimum Qualifications : 1st class B.E./B.Tech. in Electronic Engg. or Computer Engg. from a recognised University/Institute.

Desirable : Brilliant academic career plus one to two years experience in assembly/repairs of latest microprocessors based electronic equipment and computers in an organisation of repute. Knowledge about the latest developments in the field of electronic & computers would be of added advantage. Knowledge of various computer software is also desirable.

Job Requirement : To assist in upkeep of elec-

tronic equipment & computers at the Institute and upgrading of existing electronic equipment and computers by adding/modifying the existing equipment with use of latest components/assembly available/introduced in the market from time to time to achieve better output and/or to design and develop suitable measuring equipment for R&D work.

8. SCIENTIST 'B' (Electronics)-Group IV (1)-1 Post-Pay Scale Rs. 2200-75-2800-EB-100-4000.

Minimum Qualifications : 1st class B.E./B.Tech. degree in Electronics from a recognised University/Institute.

Desirable : One year experience in an organisation of repute.

Job Requirement : The candidate will be required to work on R&D/sponsored research Projects of the Institute.

9. TECHNICAL OFFICER 'B' (Electrical)-Group III(4)-1 Post. Pay Scale Rs. 2200-75-2800-EB-100-4000.

Minimum Qualifications : B.E./B.Tech. in Electrical Engg. or equivalent (with 4-6 years experience) or Diploma in Electrical Engineering of 3 years duration or equivalent (with 8-10 years experience) from a recognised institution in the field of maintenance of buildings, electrical appliances and equipment.

Desirable : Experience in the maintenance of electrical gadgets & machines and thorough knowledge of electrical motor winding electrical wiring in buildings and service lines feeding the buildings.

Job Requirement : The candidate will be responsible for the upkeep/maintenance of electrical gadgets /machines & the electrical works related to buildings.

10. SENIOR TECHNICAL ASSISTANT (Civil)-Group III(2)-3 Posts (all 3 posts are reserved for SC) Pay Scale Rs. 1640-60-2600-EB-75-2900.

Minimum Qualifications : B.E./B.Tech. in Civil Engg. or equivalent from a recognised University/Institute or Diploma in Civil Engineering of 3 years duration with 3-5 years experience in the field of civil engineering.

Desirable : Experience in the use of prefabricated components in buildings or in the field of geotechnical engineering for a period of 2 years would be preferred. Experience of field investigations would be of advantage.

Job Requirement : The candidate will be required to assist in the extension activities of the Institute/ R&D programme in the field and can be posted in one of the Extension Centres of the Institute at Ahmedabad, Bhopal, Calcutta, Delhi, Hyderabad and Trivandrum.

11. SENIOR TECHNICAL ASSISTANT (Geology/Geophysics)-Group III(2)-1 Post (reserved for ST) Pay Scale Rs. 1640-60-2600-EB-75-2900.

Minimum Qualifications : B.Sc. with Geology/Geophysics as one of the main subjects at graduation level with 3-5 years experience in surveying and Mapping or M.Sc. in Geology/Geophysics.

Desirable : Training/experience in the use of modern engineering gadgets & techniques for surveying would be of advantage.

Job Requirement : The candidate would be required to work on the R&D & sponsored projects involving site investigations & mapping work.

12. TECHNICAL ASSISTANT GRADE VIII (Planning and Budgeting)-Group III(I)-2 Posts-Pay Scale Rs. 1400-40-1800-EB-50-2300.

Minimum Qualifications : B.Sc. or Diploma in Civil Engineering/Electronics of 3 years duration from a recognised Institute.

Desirable : Diploma in Computer Programming from a recognised Institution or 2 years experience in Computer Programming or maintenance of electronic gadgets/equipment. Experience in Data Management, dBase III and Graphics language would be an added advantage.

Job Requirement : The candidate would be required to assist in development of Computer Programme and Data Management of ongoing R&D projects of the Institute including budgetary controls.

13. TECHNICAL ASSISTANT GRADE VIII (Pharmacist)-Group III(I)-1 Post (Reserved for ST)-Pay Scale Rs. 1400-40-1800-EB-50-2300.

Minimum Qualifications : B.Pharmacy or equivalent or 3 years Diploma in Pharmacy from any recognised Institute. Should be registered as a Pharmacist.

Desirable : 1-2 years experience as a Pharmacist with any reputed organisation/Physician.

Job Requirement : To assist in maintenance of medical stores and work as a Pharmacist in the Institute's hospital/Dispensary.

GENERAL CONDITIONS

1. Number of vacancies mentioned against each category is provisional and may vary at the time of selection. If more vacancies with identical job requirements become available, these can also be filled from amongst the candidates who might apply for the above posts.

2. Appointment to the posts from Sl No. 1 to 9 will be on contract for a period of six years (including the period of probation of two years) in the first instance except for CSIR employees who are already permanent in lower posts. Appointments to the rest of the posts will be made on temporary basis, likely to continue.

3. Higher start of pay may be considered for deserving candidates.

4. All the above posts carry usual allowances, admissible under Central Govt. rules as made applicable to CSIR employees from time to time.

5. Only Scheduled Caste/Tribe candidates will be considered against the posts reserved for SC/ST candidates as shown against each post.

6. Candidates belonging to SC/ST should enclose a certificate in the prescribed form from an appropri-

ate authority in authentication of their belonging to reserved community.

7. A lower standard of suitability consistent with efficiency will be applied in the case of Scheduled Caste/Tribe candidates.

8. Candidates desirous of applying for more than one post should send separate applications on the prescribed form for each post.

9. Applications from employees working in Government Departments, Public Sector undertakings and Government funded research agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be relieved within one month on receipt of appointment order.

10. Since it may not be possible to call all the eligible candidates for interview, the applications shall be short listed for which the final decision rests with the Director, CBRI.

11. There is no age restriction for these Scientific/Technical posts.

12. Candidates invited for interview will be paid single second class rail/bus fare to and fro from the actual place of journey or from the normal place of residence whichever is nearest to the place of interview on production of relevant proof of travel.

13. Services of incumbent shall be transferable anywhere in India.

14. Applicants must indicate whether any of their blood/close relative is working in CBRI/CSIR/other National Laboratories/Institutes of the CSIR.

15. Application forms can be obtained free of cost from the Controller of Administration, Central Building Research Institute, Roorkee (U.P.), Pin 247 667, either in person or on request by sending self-addressed stamped envelope (Rs. 1.80) of size 23 x 10 cm on or before 31.12.1989. The application forms completed in all respects together with non-refundable application fee of Rs. 8.00 (SC/ST candidates are exempted from payment of application fee) in the form of Crossed Indian Postal Order drawn in favour of "Central Building Research Institute, Roorkee" should reach this office on or before 15.1.1990.

16. Candidates should invariably fill up the synopsis form (enclosed along with the application form) otherwise the application will be treated as invalid and therefore, not considered. Incomplete applications including those received without attested copies of certificate, testimonials etc. and or those received after due date are liable to be rejected. Envelope containing the completed application form should be superscribed "APPLICATION FOR THE POST OF _____ (AT SERIAL NO _____)".

17. Canvassing in any form and or bringing of any influence, political or otherwise, will be treated as a disqualification for the post.

18. INTERIM ENQUIRIES WILL NOT BE ENTERTAINED.

**NORTH EASTERN HILL
UNIVERSITY**

**LOWER LACHUMIERE
SHILLONG 793001**

Advt. No. F. I-54/Estt-II-89-553

Dated : 6th December, 1989

CORRIGENDUM/ADDENDUM

In partial modification of this University's Advertisement of No. 1-54/Estt-II/89-546 dated 20th November, 1989, the following modification/additions are hereby announced.

Modifications

1. Department of English—(A) Re-2, Specialisation indicated Language Teaching may be read as Language/Literature.

Additions

1. Regional Sophisticated Instrumentation Centre :
(S) Pro—1. open.
2. Department of Public Administration—(A) Re-1, Open.
3. Centre for Computer Science—(S) Systems Engineer—1.

Scale of Pay : Rs. 3700-125-4950-150-5700/-. Educational Background required : (i) Master's level degree in Computer Technology or Electronics with Specialisation in Computer hardware, with experience. (ii) Master's level degree in Computer Science with Specialisation in software engineering with experience.

4. University Engineer : (S) Post—2.

Scale of Pay :

Rs. 4500-150-5700-200-7300/-

Qualification required : Degree in Civil Engineering with 7 to 10 years experience as Superintending Engineer OR 12 to 15 years experience as Executive Engineer in the State or Central PWD or Public Sector or Autonomous undertaking.

Job description : The University Engineer will be the Administrative Head of the Engineering wing as well as the Adviser to the University with regard to the Construction Project worth approx. Rs. 90 crores.

5. Finance Officer : (S) Post—1

Scale of Pay : Rs. 4500-150-5700-200-7300/-

Qualification required : (a) Chartered Accountant with at least 5 years of experience as such

OR

Accounts Officer in the Office of the Comptroller and Auditor General of India with 10 years experience as such.

OR

Member of the Indian Audit and Accounts Services with atleast 5 years experience, as such.

6. Department of Physics : (S) Re-1, Solid State Physics

The last date of receipt of application is 4th Jan., 1990.

**J.M.S. Khongwir
ASSTT. REGISTRAR (ESTT.)**

**PUNJABI UNIVERSITY
PATIALA**

CORRIGENDUM

Advt. No. 86/PRO/Rect/89

This is in partial modification of advertisement No. 77/PRO/Rect., NOVEMBER 1989, which appeared in University News Issue on 20.11.1989 for various teaching posts.

The specializations for the post of Reader in Astronomy & Space Science (Experimental Astronomy) may be read as under :

"Any one of the following :

- (i) Computers and image processing in Astronomy;
- (ii) CCD / Fabry Perot Interferometer Systems in Astronomy;
- (iii) Solar Physics;
- (iv) Cosmology.

Applications for the above post may now be submitted upto 22 December, 1989.

REGISTRAR

**Indian Council of
Medical Research**

CORRIGENDUM

The words "Programmm Officer" for National Cancer Registry Project mentioned in the recent advertisement may be read as **PROJECT OFFICER.**

BANASTHALI VIDYAPITH

Last date for receipt of applications for the post of Deputy Registrar against advertisement No. 13/89, published in this paper on 20.11.89 is extended upto 2 December, 1989. Others terms are unchanged. Secretary, Banastha Vidyapith, P.O. Banasthali Vidyapith 304022. No. 15/89.

**VILLAGE REPUBLICS
Economic Conditions for Collective
Action in South India**

Robert Wade

Drawing on research in areas of Andhra Pradesh where rain is scarce and unreliable, Robert Wade argues that some villages develop and finance joint institutions for cooperative management of common property resources in grazing and irrigation but others do not. The main reason lies in the risk of crop loss. Villages located towards the tail-end of irrigation systems and with soils fertile enough to support a high density of livestock show a larger amount of corporate organisation than villages elsewhere—more, indeed, than has been previously reported in the literature on Indian villages.

The author argues that peasants can organise collectively under certain conditions. Privatisation or state regulation are, therefore, not the only ways of preventing degrading of common property resources in peasant societies.

Hardbound

Rs. 200.00



Orient Longman

**BOMBAY CALCUTTA DELHI MADRAS
HYDERABAD BANGALORE PATNA
LUCKNOW GUWAHATI**

RAVISHANKAR UNIVERSITY

RAIPUR

EMPLOYMENT NOTIFICATION No. 7/89

Dated : 25 November, 1989

UGC Programme of Special Assistance to the Dept. of Sociology

Applications are invited for appointment to the following posts in the University Teaching Department of Sociology under the UGC Programme of Special Assistance.

Last date of receipt of completed application form in the University Office is 4 January, 1990 within working hours of the University.

| S. No. | Name of the Post | No. of Posts | Requirements besides Qualification for different categories of Post |
|--------|---|--------------|---|
| 1. | Professor (Elite Tradition and Dynamics of Indian Society) | 1 | Specialisation in Elite Tradition and Dynamics of Indian Society. The candidate should either have a basic degree in Sociology and proficiency in Sanskrit as evidenced by sustained research output of [recognised merit or a person having degree in Sanskrit] with competence in Sociological analysis as proved by sustained research publications of a high order. |
| 2. | Lecturer (Upkeep of A.V. Services and Field Work) | 1 | Specialisation in use and upkeep of sophisticated audio-visual equipment and capability of imparting training in audiovisual recording for field-work. |

Qualification & Pay Scale—As per U.G.C. norms.

NOTES :

- Details of qualifications and the prescribed application form can be obtained from the Registrar by sending Rs. 5/- by crossed Bank Draft together with a self-addressed envelope of 23 x 11 cm. size bearing postal stamp worth Rs. 7.20. Fee for application form will not be accepted by money order or postal order.
- The requirements regarding minimum percentage of marks shall be relaxed upto 5% in the case of SC/ST candidate. 15%, 7.5% of Lecturers post shall be reserved to SC/ST candidates respectively.
- Application (7 copies) with complete details (Bio-data) will be acceptable, on plain paper also, but the application in prescribed form will have to be submitted at the time of interview.
- Qualifications etc. as on the date of interview will be taken into consideration while making the selection.

- Advance increment in the pay scale may also be sanctioned to outstanding candidates.
- Application on prescribed form with completed details showing the employment Notification No & Specialization required must reach the Registrar's Office on or before 4 January, 1990.
- The number of posts in individual subjects may vary.

Dr. M.P. Agnihotri
REGISTRAR

RAJASTHAN AGRICULTURAL
UNIVERSITY
BIKANER

Advertisement No. 10/89

Dated : 7-12-1989

Applications are invited on prescribed application forms for the following posts in Teaching/Research/Extension on regular basis in the University. The application form and FULL

DETAILS ABOUT QUALIFICATIONS AS PRESCRIBED BY THE UNIVERSITY etc. can be obtained from the office of the Registrar, Rajasthan Agricultural University, Bikaner on payment of Rs. 10/- (Rs. Ten only) through crossed Indian Postal Order payable to the "Comptroller, Rajasthan Agricultural University, Bikaner" alongwith a self-addressed envelope of 27 cms x 12 cms size bearing postal stamp of Rs. 7.60 and send the application form duly completed in all respect to the REGISTRAR, RAJASTHAN AGRICULTURAL UNIVERSITY, BIKANER (Rajasthan) upto 15th January, 1990 !

I. Professor :

Pay Scale: Rs. 4500-150-5700-200-7300

| | No. of Post |
|---------------------|-------------|
| Extension Education | 4 |

II. Asstt. Professor :

Pay Scale : Rs. 2200-75-2800-100-4000

- | | |
|-------------------------------------|----|
| 1. Surgery and Radiology | —1 |
| 2. Home Science Extension Education | —4 |

GENERAL NOTE

- Number of posts may be increased or decreased.
- Application forms received after the expiry of the last date may be considered at the discretion of the Vice-Chancellor.
- 16% posts would be reserved for Scheduled Caste and 12% for Scheduled Tribes subject to general suitability.
- A higher start in the grade may be considered for exceptionally qualified candidate.
- The University reserves the right not to fill up post(s) advertised.
- Application forms can also be obtained from the office of Dy. Registrar, Rajasthan Agricultural University, Camp-Udaipur.

Khushhal Singh
REGISTRAR

MANIPUR AGRICULTURAL COLLEGE SOCIETY

IROISEMBA

Applications from intending candidates on plain paper with full bio-data as below along with attested copies of certificates, testimonials, etc. and a crossed Indian Postal Order for Rs. 7.50 (Rs. 1.90 in case of SC/ST candidates) drawn in favour of Member-Secretary, Manipur Agricultural College Society, are invited for 1 (one) post of Associate Professor (Agri-Economics) and 1 (one) post of Associate Professor (Soil-Science) in the pay scale of Rs. 3700-125-4950-5700/- with usual allowances and will be received on or before 10.01.90.

Qualification

Essential

(i) Consistently good academic record with Bachelor's degree in Agriculture or degree in the concerned discipline followed by first or high second class Master's degree in the concerned discipline or an equivalent degree of Foreign University.

(ii) A Doctorate degree in the concerned discipline.

(iii) Five years teaching, research and/or extension, out of which at least 3 years experience shall be in the rank of Assistant Professor or equivalent rank.

Desirable

(i) Capacity to guide research.

(ii) Knowledge of local crops.

Note :

1. For item (i) of essential qualification the qualification possessed by the regular staff already employed in Manipur Agricultural College shall be deemed to be the qualification in the relevant subject.

2. It will also be open to Selection Committee to recommend a candidate from those appearing for higher post to the lower post.

3. The Selection Committee may recommend a higher start not exceeding

3 increments to an exceptionally qualified candidate subject to the approval of the Management Committee.

4. Selected candidates may be posted anywhere in Manipur State and their designation may also be changed without effecting their emoluments and ranks.

Items of bio-data to be furnished

Full name, Date and place of birth, permanent and present postal address, Nationality, Research publication, Name of two referees not related to candidate and any other information.

The candidates called for interview will be given II class railway fare from their place of residence and Air fare from Gauhati/Calcutta to Imphal and back.

Prof. Sudhir Kumar
MEMBER-SECRETARY

राजस्थान कृषि विश्वविद्यालय बीकानेर

विज्ञापन संख्या : 10/89

दिनांक 7.12.89

राजस्थान कृषि विश्वविद्यालय में निम्नलिखित पदों पर नियुक्ति हेतु निर्धारित प्रपत्र पर आवेदन पत्र आमंत्रित किये जाते हैं। आवेदन-पत्र और विश्वविद्यालय द्वारा निर्धारित योग्यताओं के बारे में पूर्ण विवरण इत्यादि रु० 10/- का रेखांकित भारतीय पोस्टल आर्डर जो कि वित्त नियंत्रक, राजस्थान कृषि विश्वविद्यालय, बीकानेर के पक्ष में देय हो तथा 7.60 का डाक टिकट लगा व स्वयं का पता लिखा 27×12 से. मी. आकार का लिफाफा भेजकर कुल सचिव, राजस्थान कृषि विश्वविद्यालय, बीकानेर से मंगाया जा सकता है और सब प्रकार से विधिबद्ध पूरित आवेदन पत्र उपर्युक्त पते पर दिनांक 15 जनवरी, 1990 तक अवश्य

पहुँच जाना चाहिये।

1. प्रोफेसर

वेतनमान : 4500-150-5700-200-7300

1. एक्सटेंशन एजुकेशन—4

2. अस्सिस्टेंट प्रोफेसर

वेतनमान : 2200-75-2800-100-4000

1. सजंरी एण्ड रेडियोलोजी—1

2. होम साइन्स एक्सटेंशन एजुकेशन —4

सामान्य टिप्पणी :—

1. अनुसूचित जाति/अनु. जनजाति के लिए 16% व 12% पद आरक्षित हैं लेकिन आवेदक पदों की निर्धारित योग्यता रखता हो।

2. पदों की सामान्य निर्धारित योग्यता के अतिरिक्त आवेदक उच्च योग्यता रखता हो, उसे वेतन मान में उच्च वेतन हेतु चयन समिति द्वारा सिफारिश पर योग्य माना जा सकता है।

3. विज्ञापित किसी भी पद को न भरने का अधिकार विश्वविद्यालय के पास सुरक्षित है।

4. पदों की संख्या में वृद्धि या कमी हो सकती है।

5. अंतिम तिथि के पश्चात प्राप्त आवेदन पत्रों पर कुलपति जी विचार कर सकते हैं।

6. आवेदन पत्र कार्यालय उपकुलसचिव, राजस्थान कृषि विश्वविद्यालय, केम्प उदयपुर से भी प्राप्त किये जा सकते हैं।

खुशहाल सिंह
कुल सचिव